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ABSTRACT

This monograph is the result of a conference on the role of preventive and community medicine in primary medical care and education. The following six papers were presented at the conference: (1) Roles of Departments of Preventive Medicine; (2) Competency-Based Objectives in Preventive Medicine for the Family Physician; (3) Preventive Medicine Education in Family Practice Residency; (4) Preventive Strategies, Research and Evaluation in Primary Care; (5) Community and Social Medicine in Primary Care; and (6) Future Organization and Management of Primary Health Care. Six recommendations are made for legislators, administrators, medical educators, and students. (BB)

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PREVENTIVE AND COMMUNITY MEDICINE IN PRIMARY CARE

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A Conference Sponsored by
The John E. Fogarty International Center
for Advanced Study in the Health Sciences
and the
Association of the Teachers of Preventive Medicine

National Institutes of Health
Bethesda, Maryland

William H. Barker, M.D.
Editor

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TEACHING OF PREVENTIVE MEDICINE

sponsored by the

John E. Fogarty International Center
for Advanced Study in the Health Sciences

and the

Association of Teachers of Preventive Medicine

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PREFACE

The Fogarty International Center was established in 1968 as a memorial to the late Congressman John E. Fogarty from Rhode Island. It had been Mr. Fogarty's desire to create within the National Institutes of Health a center for research in biology and medicine dedicated to international cooperation and collaboration in the interest of the health of mankind.

The Fogarty International Center is a unique resource within the Federal establishment, providing a base for expansion of America's health research and health care to lands abroad and for bringing the talents and resources of other nations to bear upon the many and varied health problems of the United States.

As an institution for advanced study, the Fogarty International Center has embraced the major themes of medical education, environmental health, societal factors influencing health and disease, geographic health problems, international health research and education, and preventive medicine. Our commitment to the study of preventive aspects of human disease is expressed in the forthcoming Fogarty International Center Series on Preventive Medicine.

Improvement in the health status of the American people will depend, in great measure, on the design and application of programs which place major emphasis on the preventive aspects of human disease. Although health authorities generally agree with this thesis, there is need for more precise definition of effective methods and programs of prevention, financial resources required to implement these programs, and priorities to be assigned to research in preventive methodology. The need to assemble expertise in this field to elucidate mechanisms whereby the full impact of preventive medicine may be brought to bear on the solution of America's major health problems has been expressed repeatedly in public statements by leaders throughout the health field.

In response to this need, the Fogarty International Center initiated a series of comprehensive studies of preventive medicine in order to review and evaluate the state of the art of prevention and control of human diseases, to identify deficiencies in knowledge requiring further research, including analysis of financial resources, preventive techniques, and manpower, and to recognize problems in application of preventive methods and suggest corrective action.

In an effort to contribute to the educational aspects of preventive medicine, the Fogarty International Center has undertaken a cooperative program with the Association of Teachers of Preventive Medicine to create resource material to assist in the administration, teaching, research, and service responsibilities among departments of preventive medicine, to enhance collaborative activities between departments of preventive medicine and other academic units of health science schools, and to propose national programs of teaching, research, and service in preventive medicine. Topics to be given major emphasis include the role of behavioral sciences in preventive medicine, academic relationships between departments of preventive medicine and schools of public health, international and

extramural teaching and research opportunities in preventive medicine, teaching resources of departments, health education, primary care and family medicine, the role of ancillary health personnel in the health care delivery systems, and consumer participation in health care delivery.

This monograph on Preventive and Community Medicine in Primary Care is part of the Fogarty International Center Series on the Teaching of Preventive Medicine. The growing emphasis on preventive services has focused attention on the interests and responsibilities shared by practitioners of primary care and preventive medicine specialists. It is obvious that the knowledge developed in prevention research will be applied in practice through the primary care disciplines of family medicine, pediatrics, internal medicine and obstetrics. Accordingly, it will be necessary for the educational process to promote the integration of these disciplines with preventive medicine teaching in the development of new knowledge, the delivery of preventive services and evaluation of the health care system. This monograph attempts to analyze ways in which this integration can be accomplished.

MILO D. LEAVITT, JR., M.D.
Director
Fogarty International Center

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A Note from the Chairman

The ATPM/Fogarty Symposium on Preventive and Community Medicine in Primary Care arose from the realization that Primary Care is the most important single aspect in the spectrum of medical care and, at the same time, the most neglected, both from the point of view of training of personnel and in delivery of services to people. Medical care has become fragmented, incomplete and chaotic, and existing knowledge is not being adequately applied for prevention of disease and disability. For at least a decade, leaders in medical education have been calling for increased and improved training of primary care health personnel, both physicians and paramedics. And particular stress has been placed upon the training of a new type of primary physician popularly called the *family physician*. This physician carries out three major functions: he is the physician of first contact with the patient; he is responsible for maintaining continuity of care; he integrates the care of the patient. In a word, he is the patient's *managing physician*.

Along with these developments have come new challenges in the training of other primary care providers such as physician's assistants and nurse practitioners. In addition, in the United States as contrasted with England and most of the Western European countries, there always have been many other kinds of physicians who provide primary care services, such as those in internal medicine, pediatrics, and to a lesser extent, in some of the other specialties.

These factors combine to create a sense of urgency in improvement and rationalization of primary medical care training and in the better implementation of team practice to which, for many years, we have all been paying lip service.

Simultaneously, the educators in preventive and social medicine have become more conscious of their isolation from the mainstream of both training of medical personnel and delivery of services. The exciting research and discoveries in epidemiology and in preventive medicine are not being adequately exploited either in the medical school classroom or in the doctor's office. Doctors are graduated from school and go into practice with inadequate knowledge of these vital instruments for better service to the human race.

All of this was brought to a head by the approval in 1969 of the 20th specialty of medicine, family practice, and the ensuing renaissance in the development of training programs throughout the country. Very soon many of the "best and the brightest" of the medical students were flocking into the field and within a few years more than 200 approved residency training programs were established and their number is still increasing. The phenomenon indeed reflected a need which finally was receiving long overdue recognition.

The medical schools responded and today virtually every school in the country either has a program of training in family medicine and/or "primary medicine" or is contemplating establishing one.

There is an inextricably close affinity between preventive medicine and primary care. Indeed, primary medical care for the individual and mass community pro-

grams are the two stages on which preventive medicine performs. Realizing this, many of the forward-looking people in preventive medicine departments have initiated programs in primary care including family practice training. In many schools, separate departments of family practice have been established. In these instances the separate departments soon realized the need to have components of preventive medicine and family medicine together and either have developed these resources within their departments or created the necessary interdepartmental alliances to accomplish the same objective.

As a result of these varied and complex factors, we see primary care training in the United States taking many forms: training of family physicians, greater emphasis on primary care in the training of internists and pediatricians; and new programs of training non-physician primary care personnel. Reflecting these varying developments are the names of the departments: family and community medicine; primary care; family practice; family and community health, etc.

A century ago Virchow said, "Medicine is a social science, and politics are nothing else than medicine on a large scale." Preventive medicine is of the essence of this social science, yet it is the most neglected area of both medical education and medical practice. Fundamentally, this may be largely the result of the prevailing mode of medical practice in the United States, with its emphasis on disease and on commercialism to a deplorable extent. Yet medical education bears heavy responsibility for leadership to improve the situation.

It is in this context that the Association of Teachers of Preventive Medicine felt it important to look into the matter of how preventive medicine and primary care training can be most effectively coordinated, and how one can help the other in the development of better informed, and therefore, more humane and effective physicians.

In putting together this symposium, ATPM recognizes first of all the Fogarty Center for its practical assistance in making the symposium possible; secondly, the participants who gave of their time and talent to contribute, we hope, some constructive thoughts on the issues; to Robert Berg, M.D., Chairman of the Department of Preventive Medicine and Community Health at the University of Rochester, who was President of ATPM at the time and gave it his encouragement and to William Barker, M.D., Assistant Professor of Preventive Medicine at the University of Rochester, who wrote the excellent introduction, edited the papers and put it all together.

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INTRODUCTION

Inspection, palpation, percussion and auscultation—diagnosis and treatment—time honored attributes of the practice of clinical medicine. In addition to these, what tools and thought processes of preventive and community medicine should be included in the primary physician's education, hence hopefully in his practice? As depicted in figure 1, this question focuses upon the areas of functional overlap between the fields of Preventive and Community Medicine and Primary Medical Care. The task of this symposium has been to define these overlap areas and to recommend ways to optimally incorporate them into undergraduate and post-graduate medical education.

The need for such curricular undertakings has been acknowledged in the foremost assessments of medicine and medical education in the 20th century.

In the introduction to his epoch study *Medical Education in the United States and Canada,* Abraham Flexner (1910) observed of the practicing physician:

His relation was formerly to his patient at most to his patient's family; and it was almost altogether remedial. The patient had something the matter with him; the doctor was called in to cure it. Payment of a fee ended the transaction. But the physician's function is fast becoming social and preventive, rather than individual and curative. Upon him society relies to ascertain, and through measures essentially educational to enforce the conditions that prevent disease and make positively for physical and moral well being.

The *Report of the Committee on Costs of Medical Care for the American People* (1932) stated in the section on physician education:

Medicine is not an abstract body of knowledge to be used only in a laboratory. It is a social as well as a biological science, and it has economic, psychological, and sociological relationships. The social background and interrelations of medicine should be as much a part of medical education as the physical, chemical, and bacteriological backgrounds. Indeed, this point of view should permeate the entire professional training . . . The content and character of the education given to physicians should focus major attention on those aspects of medical knowledge and technique which in the future will occupy a major part of the time and attention of practitioners. This means, especially greater emphasis on preventive medicine in all aspects of practice, better training in the health instruction of patients, and more attention to problems of mental and social adjustment.

More recently, the *Report of the Citizen's Commission on Graduate Medical Education* . . . Millis (1966), in addressing the training needs of the contemporary primary care physician, noted:

The young physician preparing himself to offer continuing, comprehensive care needs to know people as well as their tissues and organs, medical histories . . . and relationships as well as individual disease states, medical ecology as well as symptomatology. Work in psychiatry would give him some of this background and so would some materials from sociology and public health . . .

Finally, the DHEW Forward Plan for Health, 1976–80 (1974), which identifying prevention and primary care as two major themes for guiding national health policy, stated:

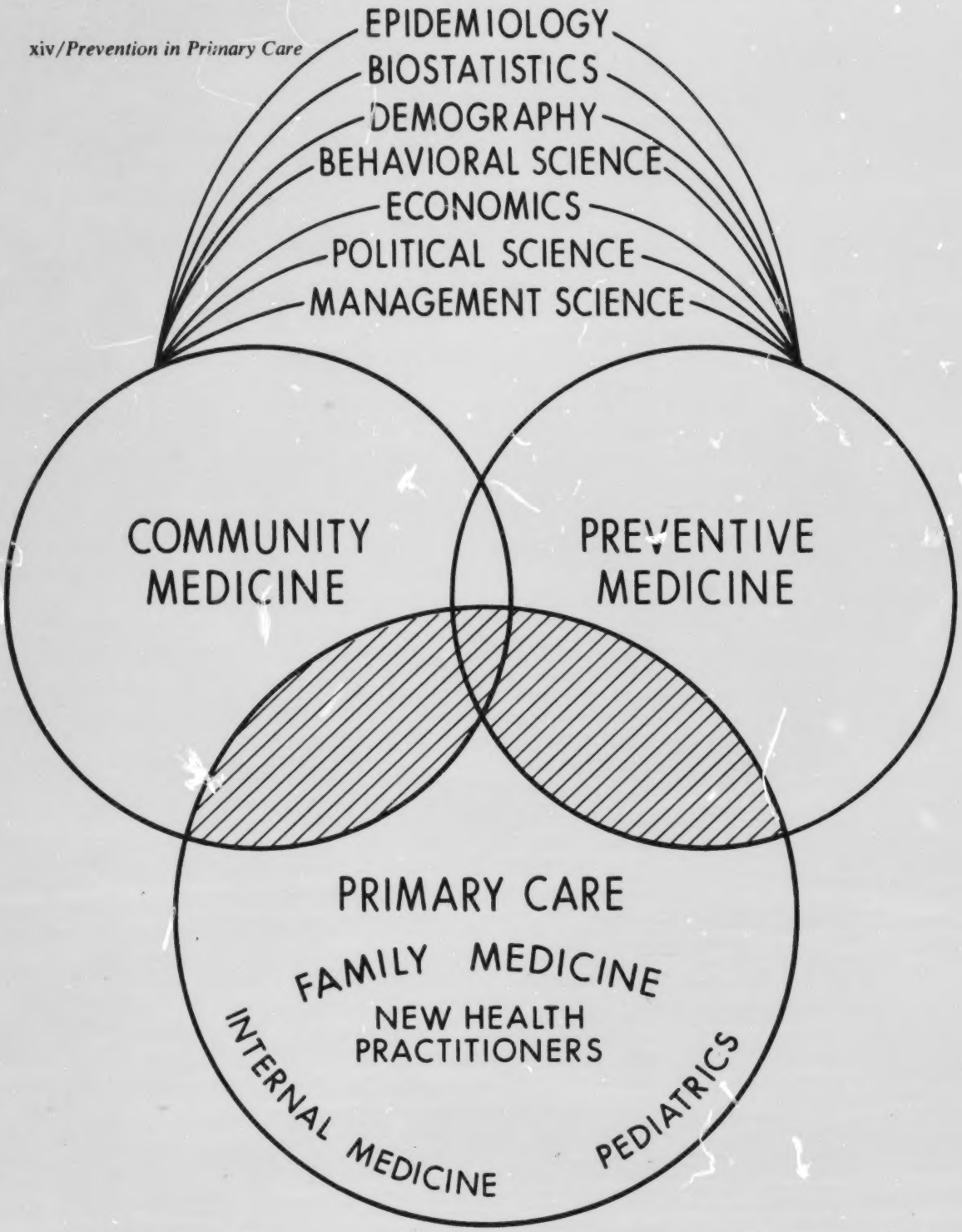

FIGURE 1. Shaded areas indicate the focus of symposium, the overlap between the fields of Preventive and Community Medicine and Primary Care.

Primary care is the key to the medical services component of our prevention strategy because most preventive health services are provided on an ambulatory basis through primary care . . .

On reflection, it is apparent that a mix of preventive and community medicine with primary care practice does in fact already exist, and will grow considerably in the future. "Content of practice" studies of general practice (Brown et al., 1971; Chamberlain and Drui, 1975), internal medicine (Coe and Brehm, 1972; Dowling and Shakow, 1952), and pediatrics (Hessel and Haggerty, 1968), and most recently the National Ambulatory Medical Care Survey (1975), have repeatedly documented that 20 percent or more of tasks that primary care physicians are called upon to perform consist of activities such as well baby care, health checkups, health counseling, immunizations, family planning, etc. The extent to which clinicians might apply concepts and tools of preventive and community medicine is exemplified by the work of such persons as Pickles (1939), Fry (1957), and Hart (1974) in England; and Hames (1971), Robbins (1970), Bjorn and Cross (1970), in the United States. The growing emphasis on preventive services and public accountability in current federal health legislation [1] defines further emerging community-oriented roles for the practicing physician.

To effectively carry out the many nondiagnostic, nontherapeutic roles conferred upon them by their patients and by society, the primary physicians need appropriate education in the concepts and application of epidemiology, behavioral science, and biostatistics, as well as selected aspects of economics, behavioral, political, and management sciences. The content and methods for educating future practitioners in these disciplines remain to be determined. A variety of sources (Kane, 1974; Kark, 1974; Morris, 1970; Davies, 1971; Horder, 1972; Breslow, 1976; Alpert and Charney, 1973, and several others in the Fogarty International Center series on the Teaching of Preventive Medicine [2]) provide extensive authoritative information. To render this material into a curriculum appropriate for future clinicians is a challenge. A recently proposed project to define the preventive/community medicine competencies required in clinical medicine should prove particularly useful for establishing such core educational material (Segall, 1975).

Ideally, these educational materials once defined would be integrated into preclinical and particularly clinical phases of medical education. In this regard, surveys conducted by the Association of Teachers of Preventive Medicine in 1973 and 1974 yielded disquieting, if not unsurprising results (ATPM, 1974). While most medical schools reported required course work in epidemiology, biostatistics, medical care, and related disciplines during the preclinical years, very few reported teaching these subjects during the last two, predominantly clinical years when students' future practice habits are most profoundly influenced. Additionally, few departments reported more than occasional educational input in postgraduate primary care training programs located at their respective medical schools. With the growing national emphasis on developing innovative primary care teaching programs in both undergraduate and graduate medical education, the time is most propitious for incorporating preventive and community medicine teaching far more effectively into this part of clinical training.

Against this background the present symposium on Preventive and Community Medicine in Primary Care was convened, under the thoughtful chairmanship of

[1] Occupational Safety and Health Act, 1970; Professional Standards Review Organization Amendment to Social Security Act, 1972; Health Maintenance Organization Act, 1973; National Health Planning and Resources Development Act, 1974.

[2] New Health Practitioners; Teaching of Chronic Illness and Aging; Consumer Participation in Health Care; Teaching Resources in Preventive Medicine.

Dr. Herbert Abrams. Participating in the two-day deliberations were a highly qualified and varied group ranging from longstanding leaders in the fields of preventive, community, and family medicine to residents in training in these fields. In addition to a common commitment to seek rational and equitable approaches to providing health services, individual participants provided valuable perspectives from a number of related areas, including history, sociology, economics, politics, community organization, and education.

The contents of the symposium, a series of six primary papers, each accompanied by formal and informal discussion, have been organized into the following four sections relating to teaching of preventive and community medicine in primary care: Medical School Aspects; Content and Methods; Disciplines; and Delivery System Aspects. Two short essays, which were submitted by special request following the symposium, are found in a supplemental section at the end of the book. The first is entitled, Preventive-Community Medicine Roles in Primary Care Education—The Family Practice Resident's Perspective, and the second is entitled Medical Education from the Perspective of Minority Groups—A Social Policy Issue. Each section is preceded by a brief summary, and a set of recommendations distilled from the proceedings is listed at the front of the volume.

The symposium covers in some depth both the conceptual and operational aspects of the stated problem of integrating preventive and community medicine into primary care education. At the conceptual level the section on Medical School Aspects addresses the issue of synthesizing preventive/community medicine departmental activities with those of primary care teaching programs; the section on Disciplines focuses on those aspects of primary care to which epidemiology, behavioral science, economics, etc., might most productively apply; the section on Delivery System Aspects postulates a rational structure for delivery of prevention-oriented primary care services and assesses the societal forces that might bring about such change. At the operational level, the section on Content and Methods of education provides detailed descriptions and analyses of specific preventive/community medicine teaching objectives and methods from several existing Family Medicine Programs. (Note: As the leading primary care teaching discipline in United States medical schools, Family Medicine is the logical clinical model to focus upon. However, it is anticipated that the principles and recommendations contained in this volume might apply to the education and practice of all types of primary care practitioners—e.g., internists, pediatricians, new health practitioners, etc.)

To summarize and reflect:

Is this era when prevention of disease and community accountability, on the one hand, and primary care on the other, are among the leading goals of our emerging national health policy, one discerns in reviewing the subject in these pages, great potential for these goals to proceed not only in parallel but in consort. It is equally apparent that certain significant barriers must be surmounted in order to optimally achieve such a mix in practice. Not the least among these are the following:

1. The tendency for public and private financers of medical research and education to equate medical progress with development and institutionalizing of new measures for diagnosis and treatment of disease.
2. The tendency in turn for the medical education process to focus almost exclusively on traditional diagnostic and therapeutic roles of the physician.

3. The tendency of the medical profession to view its role almost exclusively as that of healing the sick.
4. The tendency for third party financers of medical services to restrict themselves to actuarial models based on the occurrence of symptomatic illness.
5. The tendency of the general public to restrict health concerns to the obtaining of relief from symptoms.

Some of these barriers to preventive and community-oriented medical practice may be surmounted through education of primary care providers, as addressed in this symposium; other of the barriers will succumb only to different kinds of education or persuasion, directed at consumers, elected officials, third party carriers, etc. (Curry et al., 1974; Susser, 1975). Accordingly, it may be hoped that the readership of this monograph—students, teachers, deans, practitioners, policymakers, and others—will not only be persuaded of the importance of modifying medical education, but also of the necessity to participate in the modification of other critical factors in the fabric of our health system. To do less would be scarcely to go to sea at all.

WILLIAM H. BARKER, M.D.
Editor

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RECOMMENDATIONS FROM THE CONFERENCE

These recommendations have been reviewed and approved by a majority of participants in the symposium. They are addressed to those persons who establish and implement health policy. This audience includes:

—Legislators and administrators in Federal and State Governments who write, fund and implement legislation and regulations pertaining to medical education and content of medical practice (e.g., Health Manpower Training, National Health Insurance).
—Private foundations concerned with supporting programs in primary care and community health.
—Deans and curriculum committees of medical schools in deciding structure, content, and funding of curriculum.
—Preventive/Community Medicine, Family Medicine, and other primary care faculty in assessing teaching priorities, content, and methods of their departments or programs.
—Medical students, preventive medicine, community medicine, and primary care residents who are concerned with influencing the kind of education they receive.
—Consumers who are concerned about the type of physicians graduating from American medical schools.

1. A major role for preventive and community medicine (PM/CM) in primary medical care (PC) should be recognized by all institutions with PC teaching or training programs. Arrangements which facilitate direct involvement of PM/CM faculty in PC teaching programs and research should be strongly encouraged in medical schools and other institutions with such programs. Representatives of the respective fields should actively participate in meetings and other related activities of each other's professional societies (e.g., Association of Teachers of Preventive Medicine, Society of Teachers of Family Medicine, etc.) to facilitate the building of academic bridges between PM/CM and PC.
2. A core set of preventive/community medicine competencies required for contemporary primary care practice should be identified, and optimal methods for teaching these should be developed. Such curricular materials should be developed through the efforts of a consortium of PM/CM and PC teachers and practitioners and professional educators. Such materials should be made available for use by all PC teaching programs and as resource material for setting standards for the PM/CM aspect of PC training programs.
3. The role of PC in providing a full range of basic health services to a community of persons should be explicitly recognized and exemplified by teaching programs. Accordingly, such programs should have the following attributes: (a) Based both in community hospitals or practice settings, and

in academic centers where resources and support make it possible to give adequate training in primary care. This will assure adequate visibility of primary medicine in the spectrum of medical care and, at the same time, fully exploit available community and academic resources. (b) Provide ready access to various community agencies and organizations which play important roles in PC (e.g., health departments, school health programs, family planning and welfare services).

4. The important contributions to be made by the disciplines of epidemiology, biostatistics, behavioral science, and selected social sciences to PC service, teaching, and research should be recognized. The usefulness of descriptive and analytic techniques of epidemiology and biostatistics in developing medical record systems and in utilizing these for self-audit, peer review, identification of high risk groups for delivering preventive services and conducting evaluative research, should be recognized and promoted. The important role of behavioral science in understanding and optimizing patient utilization of health services, particularly preventive services, should be recognized and promoted. Political and economic decisionmaking processes should be understood by primary care practitioners to assist them in interpreting and influencing new health legislation and financing mechanisms which affect the delivery of primary care.
5. The need for primary care service administrators with managerial and community health training should be recognized. Appropriate curricular materials and training programs for preparing such individuals should be developed at undergraduate and graduate levels. Departments of PM/CM should take a leading role in this effort.
6. The critical role of health service financing in determining the content of medical practice and education, particularly as it pertains to preventive and community aspects, must be clearly recognized. The benefits of PM/CM aspects of PC practice in terms of effectiveness and efficiency should be well documented and used to persuade consumers, third party payors, health professionals, and policymakers of the importance of developing positive incentives (professional, economic, etc.) to enhance access to such services.

MEDICAL SCHOOL ASPECTS

The symposium opens with a series of formal and informal analyses of the issue of interrelating the teaching of preventive/community medicine and primary care in medical schools.

Dr. Tapp relates this symposium to the overall prime purpose of medical school education—to train physicians suitable to meet the needs of society. He focuses on the current strongly expressed need for primary care physicians and the role departments of preventive medicine, with their traditional emphasis on defining and solving health problems from the point of view of the community, can play in this movement. The main body of the paper is a review of current goals and problem lists of preventative medicine and primary care teaching programs in medical schools. Since the two fields have substantial commonality of purpose and institutional needs, the paper advocates a close, if not formally consummated relationship between departments of preventive/community medicine and primary care programs, particularly family medicine. Dr. Castle's invited discussion agrees with Tapp's formulation of the issues, but argues for the creation of a new type of community medicine/primary care department rather than attempting to harmonize the ways of the traditional non-clinical preventive medicine department with those of the new primary care. Experience with such a department at the University of Utah is briefly described. General discussion begins with an exchange of opposing views on the proposed preventive/community medicine—primary care departmental marriage. An inevitable interlude to establish a working definition of primary care follows. The discussants then address community and preventive roles appropriate to primary care, giving particular attention to the concept and the mechanics of a "trusteeship" between the primary physician and his patients and community. Discussion closes with questions of the distinction between "family medicine" and "family practice" and of the role of these primary care concepts in our changing society.

1

ROLES OF DEPARTMENTS OF PREVENTIVE MEDICINE

Jesse W. Tapp

INTRODUCTION

This paper deals with departments of preventive medicine faced with the current rapidly growing interest in primary care. Already, a number of medical schools have linked these elements, both in school structure and in function. I will review the desirability of this development in view of the general purposes of medical education. First, I will look at medical education in general, and then turn to the specifics of preventive medicine and primary care, especially as they pertain to meeting society's expectations.

Medical school is conventionally viewed as a triad of education, research and service, with increasing attention currently being given to the last of these. What responsibility do we in medical education have for helping to meet today's health care needs? We continually have to explain that, for us, service and education are indivisible. Our unique function is to meet manpower needs for providing health care. To achieve this, the process of educating physicians at all levels should be focused on the identifiable needs of society, both in providing adequate numbers of physicians and in preparing them with skills and attitudes conducive to serving society. Graduate medical education needs to be much more attentive to the needs of society for the various kinds of specialty manpower, as well as to the problem of geographic distribution of health care providers, by whatever mechanisms will work. Likewise, graduate education must prepare physicians for medical practice arrangements which are not only cost effective for society, but also conducive to continuing education, focused on demonstrated needs for health care, not just the preexisting interest areas and current novelties attractive to physicians.

Medical education may also serve society in the preparation of allied health and physician support personnel, so that physicians and other providers of health services can work more productively together. With all of the verbal recognition given to the "health care team," it is still unclear who should lead and who will serve on the team. The role of the medical school in preparing team members seems to be just as confused as the role of the physician himself within the team. Improved health care teamwork in the community will require more effective learning in the formative years of physicians.

Medical care is being provided to large numbers of patients in order to achieve the educational and research missions of medical educators. Providing this care could afford opportunities for research and development in improving the health care system also. Educational experiences for students in the patient care systems of communities should include finding ways to expand care in underserved areas. Educational experiences in underserved areas should be more conducive to entering practice in those areas. Until we put as much effort into the quality of the educational experience aimed at meeting health care needs as we do into the more esoteric aspects of medical diagnosis and treatment, we cannot expect to have physicians oriented to community service as much as they have been to research and subspecialty practice in the past.

While meeting the health manpower needs of society, we are also meeting the career goals of future professionals, which may be as much of a service to the community as is direct provision of patient care. Medical school provides access to becoming a physician not only as a traditional middle class career pathway, but now increasingly as a vehicle for minority opportunity. We have to be careful, however, that we do not confuse career opportunities for minority students with attempts to meet health care needs of shortage areas that require another kind of effort for solution. Minority students have no more obligation to help meet the needs of shortage areas than do any others, but they have potentially great sociocultural advantages if they do enter practice in the settings in which they know the language and way of life.

Scientific exploration continues to be the basis for many health improvements in society, if kept in perspective along with education and service. Medical faculties conduct research in all three areas of their competence, basic biology and chemistry,

clinical medicine and community health. More attention is needed for the last; the community expects the institutions it supports to be responsive to its needs. Medical school responsibility to the community often has been expressed primarily in traditional departments of preventive medicine, and it is to this area that we now turn for the rest of this discussion.

DEPARTMENTS OF PREVENTIVE MEDICINE

The long and often distinguished history of preventive medicine in medical education has been well documented and analyzed (Grundy and Mackintosh, 1957; Shepard and Roney, 1964), yet its nature and definition are still debated and the necessity for departments as such frequently questioned. In spite of the popular belief that an ounce of prevention is worth a pound of cure, the popular purse still supports cure far more handsomely. Departments of preventive medicine exist in a variety of forms, ranging from being the catchall for whatever is not wanted by other departments to another extreme of being separated from the medical school altogether as a school of public health. Some feel that departments of preventive medicine are not needed, believing that all clinical specialties teach prevention adequately in their own ways, and furthermore that epidemiology and biostatistics should be taught by those who actually apply the fruits of these tools in practice. Nevertheless, separate departments of preventive medicine persist in most medical schools.

The educational objectives of preventive medicine teaching in medical school may be characterized as follows: (1) Doctors should be able to use a null hypothesis in evaluating the statistical significance of biomedical data. (2) Doctors should be able to use a denominator in searching for and evaluating causes, cures and care processes. (3) Doctors should be able to use the vital and health statistics of their population in clinical decisionmaking and problem solving, both for individual patients and for entire communities. (4) Doctors should be skilled in using environmental and occupational health data in patient care and community leadership. (5) Doctors should know how to use behavioral science tools for understanding and modifying health and disease behavior in patients and populations. (6) Doctors should understand and be prepared to participate in the processes of health service planning, organization, and administration.

These objectives are pursued in a variety of educational and service programs. Preclinical courses in the basic disciplines of epidemiology and biostatistics persist in spite of arguments about relevance and usefulness for most students. Field trips, family studies, home visiting and home care programs are used in demonstrating the applications of preventive medicine doctrine. Learning by doing is popular in student projects and research involvement in epidemiology and health services. In the past, widespread medical school disinterest in ambulatory care and outpatient department operations sometimes found them relegated to departments of preventive medicine where they might serve to demonstrate the practice of clinical preventive medicine as part of comprehensive care. (These ambulatory care operations now represent money in the bank for those departments wishing to express themselves in the new era of primary care popularity!)

Graduate programs in preventive medicine are more common in schools of public health but also have been developed as residencies in preventive medicine or master's programs in community health in a few medical schools, with or without a related master of public health degree.

The problem list for a typical department of preventive medicine might read as follows:

1. An appearance of diffuseness, lack of clear identity or unique contribution in the medical school curriculum (versus the more simply defined content of the clinical and basic science departments).
2. Student unrest and/or disinterest, questioning the relevance of biostatistics, epidemiology, etc.
3. Departmental isolation, being neither a pure basic science nor being readily accepted as a peer by the other major clinical specialties.
4. Medical indigency, lacking the cash flow which derives from major clinical practices and access to hospital beds.
5. Inadequate, if any, physical space in the academic medical center.
6. Dependence on community agencies and voluntary faculty for teaching and research, as well as service.

Facing such pernicious problems over the years, some new formulations for preventive medicine have been put forward and have found their ways into departmental designations. "Community Medicine" now claims the most adherents, but confusion has been compounded.

Some define "Community Medicine" to mean

diagnosis and treatment of the community, as if it were a patient (McGavran, 1956; Deuschle et al., 1964), giving a unique focus to the community as the object of interest and work. In this camp, educational objectives give emphasis to knowledge and skills dealing with groups and populations for problem solving, environmental control, health education, etc. Educational methods focus on studying entire communities with the intention of developing and implementing solutions to defined problems. Personal health care to individual patients is not generally of primary concern, and may be actively avoided.

Others interpret "Community Medicine" to mean medical practice in community settings, giving emphasis to the health care delivery system. Educational objectives cite availability, accessibility, acceptability, equity, and quality of personal health care services. Direct concern is expressed with providing health care facilities, funding, medical manpower and teamwork. This orientation is more sympathetic with meeting demands for sickness care, as well as preventive health care. It is also more conducive to a coalition with primary care providers in the process of delivering health care in such locations as neighborhood health centers, HMO's, etc.

PRIMARY CARE

Let us now turn to primary care in medical education and explore its relationships with preventive and community medicine. Especially since the time of the Millis Report (Millis, 1966), increasing recognition has been given to educating physicians for providing primary patient care as primary in itself, not simply secondary to other specialty training. Among traditional specialists, pediatricians have been especially receptive to the importance of primary care, including well-baby and child health care. Nevertheless, their doctor orientation to sick care has been frustrated by the preponderance of well children; consequently, the latter care has begun to be relegated to non-physicians, especially where income protection is not at stake. Internists have had much more difficulty clarifying their roles as consultants and also as primary doctors for adults. Surgeons, too, continue to offer themselves as primary care providers and in the process have been accused of providing twice as much surgery as may be required by the general population. Meanwhile, the old-fashioned general practitioner has all but disappeared, partly from neglect and more deliberately by the design of those who feel that no physician can competently deal with all ages of patients with all sorts of presenting complaints. (I am tempted to draw an analogy between our letting general practice decay and the origins of the current energy crisis. Society failed to see the impending result of the overuse of scarce resources. No provision was made for economically meeting everyday needs, either of energy or health care. Will society enjoy rediscovering a simpler lifestyle in the same way that physicians are rediscovering the pleasure of taking care of whole people and whole families?) Now family medicine has emerged as a recognized specialty defined in terms of breadth rather than depth. Though it is viewed by some as being the jack of all trades and the master of none, many family physicians see themselves going well beyond the level of primary care to provide secondary, and even tertiary care in situations in which they feel able to perform. All in all, it appears that hardly anyone wants to be either limited to, or excluded from, primary care. Everyone would like to have a piece of the primary care action, if it appeals to them or meets their economic needs to do so.

Other kinds of providers have been getting on the primary care bandwagon, with and without our help. Physician's assistants are being trained to provide primary care on independent duty, perhaps with special telecommunications linking them to physicians for supervision and decisionmaking. The nursing profession is beginning to take greater interest in primary care, in some places providing direct services without any physician involvement. Needless to say, nurse practitioners hotly debate to what extent they are physician's assistants in primary care. Legislation now defines the extended role of the nurse in some situations that do not require physician participation. Patients themselves are being taught to examine every orifice, with or without interpretation of their findings. Self care has always been the most basic form of primary care and still may be preferable to inappropriate subspecialty care.

Educational objectives for the teaching of primary care in medical schools have varied according to the setting in which the student has been exposed to primary care. The focus usually includes health maintenance, episodic, acute and emergency care, psychosocial care, continuing care for chronic illness, and recognition of other kinds of care for referral or consultation. The teaching experience for attaining

such objectives has been variously packaged. Each specialty department has operated its own outpatient department with the objective of seeing new patients and following old patients, before and after hospitalization, not ordinarily with the objective of providing either comprehensive or continuing care. Attempts are being made to coordinate outpatient services by improving systems of communication between the different specialty services, and are beginning in turn to provide some form of continuing care to patients. Sometimes this chore is delegated to departments of preventive or community medicine with the idea that their concern for health service organization could result in a workable system. Faculty representing all specialties may function as a group practice and even as a health maintenance organization. It is not inconceivable that such organizations could provide comprehensive and continuing patient care teaching models at primary, seondary, and tertiary levels without the need for a special primary care organization. Other teaching approaches are preceptorships and other assignments with family doctors, rural practices, outside agencies, charity clinics, and emergency services.

Combinations of specialists, mainly internists and pediatricians, are providing primary care learning experience for students, sometimes in competition with family medicine programs, which also offer primary care experience within the same medical school. Some family medicine enthusiasts prefer to remain separate from other primary care providers while struggling to gain recognition and legitimacy. Medical schools have to consider whether or not to grant departmental status to primary care and/or family practice. If so, what entity will it be? Already many departments of family medicine have been established, largely in response to political pressure, both informally and by legislation. Elsewhere primary care and family medicine programs remain as coalitions of ambulatory service facilities with input from multiple departments, or as nondepartmental entities, perhaps attached to the dean's office. Ambulatory and primary care sections are recognizable in some departments of pediatrics and medicine.

The rise of interest in family practice is undoubtedly the most spectacular aspect of the primary care picture today, beginning with the recognition of Family Practice as a specialty with American Board certification in 1969 and the rapid proliferation of over two hundred approved residency programs. According to the American Academy of Family Physicians, these programs attracted almost two thousand graduating student applicants from U. S. medical schools in 1974. Increasingly large numbers of students and potential residents want to be trained in this newly defined specialty. The most characteristic feature of family practice is the opportunity for a single physician to provide care to an entire family, which is claimed to be more efficient and personal than the usual multispecialty approach. Likewise it is claimed that consultation and referral can be minimized and done more readily and efficiently when required for some five to ten percent of patient problems. Comprehensiveness and continuity of care are extolled as the primary virtues. It is expected that the family physician will assume the role of leader of the primary care team. The leadership role is not clearcut with regard to the other medical specialties except in those situations where the family physician controls the flow of patients and income to the other specialists.

The problem list for departments of family medicine in medical schools resembles that of preventive medicine in some respects, adding in their lack of specially trained and experienced faculty members. Family medicine has had to draw its initial faculty largely from the preexisting academic specialties, but is now beginning to train its own. The lack of a strong research background is being remedied, especially in the study of the pattern of illness and the pattern of practice in family medicine and primary care. Lack of academic space requires heavy reliance on community hospitals and community health care facilities and limits the visibility of family medicine in the academic medical center. In the traditional curriculum, no time was allocated for family practice training. However, the plethora of new curricula in medical schools provide increasing opportunity for penetration and reorientation to family medicine. Lack of hospital beds and Outpatient Department space have hampered the development of family practice. Lack of recognition by the traditional specialties has been helped by the recognition of the American Board of Family Practice and approval of residencies in family medicine. This entire phenomenon is only five years old, and is not yet accepted as reality by some cautious souls.

The sudden popularity of family medicine among students and residents appears to represent among other things a widespread desire to return to a simpler lifestyle in more pleasant surroundings. It is not

at all clear yet whether the family unit is really going to be the basis for this practice or whether the name is not still a euphemism for general practice. Certainly the emphasis on the family is the unique characteristic of the discipline and holds vast potential to reorient thinking and practice, especially along preventive lines.

PREVENTIVE MEDICINE—PRIMARY CARE

Departments of preventive medicine have been drawn into the primary care phenomenon and some have joined forces with family medicine in joint departments. By 1974, 17 of 76 departments responding to a survey by the Association of Teachers of Preventive Medicine (ATPM, 1974) were conducting family practice residencies. As noted, preventive medicine needs help in strengthening its position in medical schools and also has resources to offer. Preventive medicine is expected to have the tools for the study of health care problems of population groups, and primary care seems to be the area in which to apply these tools. At the same time, primary care needs support. It lacks departmental resources and is not yet widely recognized as a legitimate entity in academia. It is natural for preventive medicine and primary care to join hands to share resources and pursue complementary goals.

Educational objectives common to preventive medicine and primary care include knowledge and skills in the areas of health maintenance, comprehensive care, behavioral and social determinants of illness and management of community resources to provide continuity of care.

The advantages of collaboration between preventive medicine and primary care suggest that the combination can be synergistic. Common educational objectives justify taking advantage of student and physician interest in patient care to help improve the impersonal image of preventive medicine. Combination of efforts should provide more efficient use of space, curriculum time, faculty, and community resources for teaching. Joint programs can encompass the entire spectrum of care from an individual patient, through his family, on to the entire community. If services can be made operational for the entire spectrum, it should be easier to provide health care intervention at the most effective level. This would be true especially in coping with chronic disease problems where intervention requires dealing with all age groups and multiple risk factors.

In order to provide good primary care, critical selection and evaluation of preventive health care measures is required. Otherwise, items of doubtful validity may be embraced by primary care in the effort to appear cloaked in prevention. Likewise, preventive medicine enthusiasts require clinical feedback from primary physicians about feasible forms of prevention and current disease problems. Health services evaluation at all levels can make good use of controlled clinical trial methodology, requiring collaboration of preventive medicine with primary care physicians. This sort of clinical research takes advantage of mutual concern for recognizing the natural history and spectrum of disease. Both preventive medicine and primary care are undertaking the reduction of risk factors and measurement of outcome. Both require community resources to achieve the goal of improved health status for each patient in the population. Occupational health is an example of an area in which primary care and preventive medicine are in practice simultaneously with individuals and entire work groups.

Close collaboration also has risks and disadvantages for both preventive medicine and primary care in the medical school. Areas of antagonism exist along with synergism. Both have unique missions beyond the areas of common concern. Preventive medicine must be able to maintain an emphasis on the community as a whole, while the primary care physician focuses on a close personal relationship with each individual patient. One or the other of these emphases in teaching, research, and service may be overshadowed by the success of the other or may be hindered by the failure of the other, affecting the performance of both. At the present time the popularity of primary care and family medicine has the potential to eclipse preventive medicine in the competition for scarce resources in the medical school. At a time of disenchantment with government and the growing anonymity of mass society, students and teachers may tend to turn away from the community as a whole to give their attention to the individual and the family. Nevertheless, preventive medicine areas such as health education, environmental health and disease eradication require continuing strong emphasis on communitywide effort. International health programs become more and more critical as the magnitudes of current world health problems increase. No diminution of effort in these areas can be condoned,

regardless of how much devotion primary care education must show to the personal elements of doctor-patient relationships, and the excellence of diagnostic and treatment services.

Those who want to work with this entire continuum of care from the individual to the whole community must be committed to securing adequate educational resources to perform the whole job. Otherwise the risks of close collaboration may produce more confusion than success.

Having reviewed the current status of preventive medicine and primary care in medical education, we must consider whether they should follow a common pathway. We do not have firm scientific evidence favoring joint efforts. This decision must be, like most clinical impressions, based on the judgment of those doing the job. Primary care provides good clinical experience in preventive medicine and likewise requires preventive medicine expertise to achieve the goal of health maintenance and comprehensive care. Joint and integrated programs are now functioning well and thus are possible, even though great care will be required to keep them in balance. This combination may work better than the past experience of seeking primary care from the tertiary care oriented specialties. If preventive medicine and primary care do find happiness together, they can be expected to produce happiness in society.

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INVITED DISCUSSION

C. Hilmon Castle

I agree with the problem list outlined by Dr. Tapp for Departments of Preventive, Community and Family Medicine in medical schools. They can be summarized as: (1) isolation from the mainstream of student and housestaff teaching and from the kind of research that interests academic faculty, and (2) lack of strength and resources to influence and affect decisions that will promote Preventive, Community or Family Medicine.

My comments reflect my personal experience over the past four years in planning and developing a new Department of Family and Community Medicine. In the spring of 1970, I spent three months at a well-known school of public health located in the East. My experience there was disappointing since it appeared that little was known about how to successfully integrate the teaching of preventive medicine, epidemiology, biostatistics, behavioral science, economics, management, health planning, etc., into the education of the people who would be responsible for delivering health care. The isolation of this school of public health from the medical school, as well as from the immediate problems of health care in our country, was quite surprising. I did meet several people who were struggling to acquire the skills necessary to study community health problems and to incorporate this study into the curriculum for those being trained to deliver medical care. However, I had great difficulty finding successful models, inspiration or even direction.

In an article published in the *Archives of Internal Medicine,* Kaplan (1972) defined "community medicine" as the delivery of health care in the community (a definition quite different from the one presented by Dr. Tapp) and noted the advantages to medical schools in eschewing involvement in the delivery of medical care. His opinion was that if medical school faculty did become involved in patient care, they should always be in a position to opt out of such activity if the service function became too heavy. He indicated his impression that community medicine was superficial, ineffectual, and irrelevant. For example, he described outpatient clinics as "inadequate facilities for disinterested faculty to take care of uninteresting patients." He clearly felt that Departments of Medicine should not become involved in delivering care to community populations.

With our similar backgrounds of training in internal medicine and academic careers as biomedical investigators and teachers in a subspecialty (he in Endocrinology and I in Cardiology), after reviewing the urgent needs for improved delivery of care, we disagree on the future role of medical schools in meeting these needs. Unlike Dr. Kaplan, I subscribe to the definition of community medicine presented by Dr. Tapp, i.e., the identification and solution of community health problems, and feel that medical schools have a responsibility to become involved in community problems and their solutions.

My comments regarding Departments of Preventive Medicine, Community Medicine or Community and Family Medicine are based on the following assumptions:

1. Health Science Centers with their medical schools have a responsibility to provide leadership in meeting health care manpower needs, particularly within the region in which they are located. It is not enough for a Health Science Center to train a sufficient number of providers; the providers must also be appropriate in type and must be equipped to meet the needs of the community. Physicians and other health workers should be educated to participate in a team approach to delivering health care.

2. Health Science Centers must research health care needs and formulate and evaluate alternative solutions for community health problems.

3. Health Science Centers must be able to negotiate with the people in the community in a mutual quest to provide appropriate solutions to health problems.

4. Since most medical schools operate on a departmental structure, we must assume we will continue to operate with this administrative arrangement for the immediate future. Perhaps this is not the best arrangement, but in established medical schools it appears to be the only acceptable structure at present.

I doubt that the public or even the decisionmakers in the Health Science Centers perceive a strong

need for epidemiology, biostatistics, behavioral science, and environmental and occupational health, etc. We in preventive and community medicine see the need so clearly it is incomprehensible that others do not. We will be making a mistake, however, if we do not remind ourselves of the lack of understanding of and interest in these disciplines in medical schools. The terms "Preventive Medicine," "Social Medicine," Community Medicine" and "Community Health" provoke a variety of feelings and reactions—mostly negative. Even though the term "Community Medicine" is becoming more frequently used, it still has not proven very helpful in conveying to people outside the field the goals and functions of such a discipline in a medical school. The similarities among medical schools in their Departments of Internal Medicine, Pediatrics, Surgery, etc., make these disciplines easy to understand but, unfortunately, this is not true for Departments of Community Medicine. For example, if we consider the enormous differences in the communities that surround Mt. Sinai Medical School and the University of Utah, we can imagine how different their community medicine activities are likely to be. Appreciating the diversity among those attending this conference, I suspect we will have many differences of opinion regarding Departments of Community Medicine and their roles and whether they should be combined with other departments that have clinical responsibilities. Ideally, however, it seems that the overall goals of such departments should be consonant even if their activities vary.

We must define several terms before we proceed in our discussion. It should be noted that these are not necessarily mutually exclusive. The terms and their definitions follow:

1. *Preventive Medicine* refers to a whole spectrum of activities aimed at the prevention of disease. These may run the gamut from primary prevention (removal of the risk or initiating force) to preventing complications of a terminal illness.

2. *Clinical Preventive Medicine* is the application of the knowledge of preventive medicine to individual patients. An example would be the type of prospective medicine advocated by Robbins and Hall (1970) in the *Health Hazard Appraisal* or the activities performed in routine well-baby care.

3. *Community Medicine* is the identification and solution of community health problems. This is medicine of the community and not in the community. It is an academic discipline and includes epidemiology, biostatistics, behavioral science, environmental and occupational health, economics, management, etc.

4. *Primary Care* is first contact care that provides the patient's entry point into the health care system. The primary care provider:

   a. evaluates the patient's total health needs, provides personal medical care within one or more fields of medicine, and when indicated, refers the patient to appropriate sources of care while preserving the continuity of his care;

   b. assumes responsibility for the patient's comprehensive and continuous health care, and acts, where appropriate, as the leader or coordinator of a team of health care providers;

   c. accepts responsibility for the patient's total health care (preventive, diagnostic, curative, and rehabilitative) within the context of his environment, including the community and the family or comparable social unit.

5. *Family Practice* is one model for delivering primary care. It synthesizes and integrates a wide range of medical and personal skills into the practice of a single physician. A family physician is one who provides comprehensive, continuous care to all members of a family.

6. *Family Medicine* is a discipline concerned with the relationship of life in small groups to health, illness and medical care. It focuses on the relationships between the individual (patient) and the families, and between families and their surrounding environments. As such it represents a continuum of clinical medicine with community medicine.

Traditional departments of preventive medicine have not generally played a prominent role in responding to the perceived needs either of the community or of those who provide direct medical care. In fact, in many schools disease prevention has been better taught by other departments, e.g., pediatrics. The problems of isolation and lack of resources and strength among departments of preventive medicine have sufficiently handicapped them to make them ineffective in this area. There is an evident need for instruction in epidemiology, biostatistics, environmental and occupational health, behavioral science, management and economics for those who will be delivering health care. The unresolved question is, where should these disciplines be located in medical schools and how should providers of care obtain the knowledge and skills they need? Separation of these disciplines into schools of public health has created barriers and effectively precluded their access by

medical students, housestaff, and medical school faculty. I believe if these disciplines are to be taught in the medical school, for their survival they should be grouped together within a unit that has clinical responsibilities which relate to the needs and interests of medical students. There must be a better demonstration of the app'icability of these disciplines to solving problems physicians deal with today and in the future.

In order to train qualified health providers in cost-effective primary care which is responsive to the needs of families and communities, we need new departments of preventive or community medicine which have been sufficiently altered to take on such responsibility. A department combining community medicine and family medicine and offering a residency in family practice is attractive in some areas, but perhaps inappropriate in others. Local needs and circumstances are sufficiently diverse to make one reluctant to generalize about such departments. Unfortunately, I am not aware of any studies that document which arrangement in a medical school is the most effective in cultivating health providers with the knowledge, skills and attitudes obtainable from such disciplines.

As pointed out in Dr. Tapp's paper, family practice programs have been handicapped because of their origin outside the academic community. They have been mandated by the legislature in some schools and by the organized general practitioners in others. The conflict between training the "super doctor" or a new type of physician has not been resolved. Separation of family practice training from the academic community produces the same problems encountered by teachers trained in community colleges rather than universities. The superficiality, triviality, and ossification, emphasized by Silberman (1970) in *Crisis in the Classroom,* which has occurred among teachers trained in community colleges, could be duplicated in the products of family practice education. Family practice is still in transition and must become more of a "cerebral" pursuit if it is going to have a long life. Family practice education already has great advantages over the training previously provided to the general practitioner, e.g.:

—Training is longer and better.

—Status and a standard of quality have been attained through specialty boards in family practice and organizational representation in groups that are making decisions about the future of medical education and practice.

—Many outstanding medical school graduates are being attracted into family practice.

—Approximately 60 medical schools have developed autonomous divisions or departments of Family Practice or Family Medicine and support is being provided to formulate goals and evaluate effectiveness of teaching students and residents.

—Over two hundred Family Practice residencies have been established with 1,200 first-year positions for which there were approximately 2,000 applicants in 1974.

—Many of the Family Practice training programs have the following attributes:

  —Learning settings and patients similar to the type qualified physicians will pursue later are being used to provide experiences relevant to practice.

  —Knowledge and skills in human behavior, group dynamics and health hazard assessment for individuals, families and communities are being taught.

A good beginning has been made, but the advantage of Family Practice over other clinical specialties in training physicians to meet the community needs in health care must be demonstrated. If family physicians can be cost effective, I suspect they will be sustained on this basis alone. Preferably, if they provide better care with better outcomes as a result of employing principles not embraced by other disciplines, they can be sustained on this ground. Through a synthesis of family and community medicine education, efforts are being made to do the following for family physicians:

—Create a system for accountability and feedback regarding the quality of care provided.

—Utilize what is known about families and how this affects the problems they have.

—Develop a technology that is unique to Family Practice, i.e., classification of patient behaviors at the point of contact with physicians and a scheme for classifying interaction between patients, families and their environment.

Some have argued that primary care and family medicine can be practiced well by individuals trained in Internal Medicine, Pediatrics, Obstetrics-Gynecology, or even Surgery. Others have questioned: How appropriate is it for people with such selective training to engage in the teaching and practice of primary care? The family practice model appears to provide more appropriate training; and if principles of community and preventive medicine

are encompassed in the family physician's training, and are within his competence, he should be better prepared to address the current needs in delivery of care. Internists see themselves as sophisticated personal physicians and even as a higher quality variant of the family physician. Although this seems a pretentious and unrealistic image, it is one that has prompted internists to propose that they are the most appropriate type of physician to meet the health care needs of individuals.

Individuals in departments of Internal Medicine have noted that support for subspecialty training is disappearing. Primary care is now in the spotlight and the public is demanding that medical school resources be more effectively used to produce individuals who can provide the necessary kind of medical care. The dominant position of departments of Internal Medicine in medical school makes them a logical resource for producing new practitioners. Many Internal Medicine departments have more than one-third of the medical school faculty and the most success-oriented faculty in the school. Unfortunately, many of them live by the Charlie Wilson axiom: i.e., "what's good for General Motors (internal medicine) is good for our country." It is doubtful that departments of Internal Medicine which have been committed to biomedical research and producing the physician-scientist in subspecialties are actually able to provide the kind of training needed by individuals who engage in primary care.

Whatever the outcome, it would seem to me easier to form new departments with a commitment of faculty and other resources to a new purpose rather than redirect departments which have been successful in other ventures to training a new type of physician for primary care in the 1980's. Within 4 years, our new Department of Family and Community Medicine at the University of Utah has established a family practice residency with 36 trainees, certified 54 Medex and deployed them to provide primary care under physician supervision in rural communities, developed and implemented a curriculum for medical students in family and community medicine, developed a residency training program in community medicine, developed an active research program in health care delivery and assessment of quality of care, and instigated several demonstration projects which encompass primary care, i.e., the family health center in a rural setting, model family practice units, and a community hypertension detection and follow-up program. We have made considerable progress in integrating the educational programs in community medicine and family practice. Quality of care assessment based on process and outcome studies has been possible because the disciplines in community medicine and family practice have been brought together in the same department. An emphasis on training for competence in our family practice residents rather than relying on amount of time assigned to a specific service has been maintained as a result of the disciplines oriented to evaluation and research.

Some educators and administrators, who advocate a new type of primary care physician, feel that entirely new medical schools are needed. I think the job can be done within existing medical schools if new departments are created, especially if these departments include the disciplines mentioned above, are allotted adequate resources and can depend on other clinical departments and divisions to teach special clinical knowledge and skills that family physicians need, e.g., orthopedics. ear, nose, and throat diseases; office gynecology; dermatology; neurology; etc. Perhaps even existing departments of Preventive Medicine or Internal Medicine can be effective in meeting the health needs of communities, but only if a major revision of goals and faculty within such departments is effected. The question remains as to the best approach to gaining the strongest commitment of a resourceful department to teaching and studying primary care. Retrospective analysis probably will not answer the question of the most effective administrative arrangement, but studies properly designed and implemented now may provide insights as to the best administrative structures to produce qualified primary care physicians who will help in solving community health problems.

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DISCUSSION

CASTLE: There's no question that a knowledge of epidemiology, biostatistics, behavioral science, management, economics, and environmental and occupational health is necessary. I agree with Dr. Tapp that having these things in a school of public health has been a mistake. It's equally a mistake to house them in a medical school department that is similarly isolated and unrelated to clinical activities. To be authentic to medical students and young physicians, one will have to have clinical care responsibilities. In the problem list for departments of preventive medicine, Dr. Tapp said the students are questioning the relevance of biostatistics and epidemiology. They are questioning the relevance of everything. I'm not sure I know what they are interested in regarding both clinical and community roles in electing to pursue a primary care career.

ABRAMS: Perhaps we could hear from one of the residents in response to this.

CHRISTIAN: When you come into a program like family practice that's not well defined, you really don't know what you want. You have a general concept that you want to be the kind of practitioner that can take care of most problems presented to you without having to refer out. Basically, it is clinical concept. But as far as innovations and whether or not epidemiology and other community medicine sciences are important, I don't think we know that. Therefore, faculty concerns about whether the student is interested in epidemiology are not valid. As teachers, you should be guiding the students in the right direction in relation to health care system needs. We have a general concept, but still the majority of us have come into programs without clearly knowing what we want and need out of the program.

ABRAMS: What is the general concept?

CHRISTIAN: My general concept is that I'm going back to a small community to practice, and I want to be able to take care of 80 to 90 percent of the problems without having to refer out. Also, my whole attitude about medicine is that you should prevent it before it happens, so I wanted to have a better understanding of that. As far as management skills, I wanted to know the economics of running an office: How do you hire and fire people? What's necessary to really having an efficient office, etc? I wanted to know all those things. When I looked at programs throughout the country those were the things that I was looking for.

BAKER: I'm not playing the devil's advocate when I say it's not a natural marriage between departments of preventive medicine and community medicine and departments of family practice or primary care. I don't see that there's anything more natural about that than marrying them with cardiology or with any other of the major departments. There is certainly a lot of expertise to offer and a lot of expertise that we need, and Dr. Tapp has pointed this out beautifully in terms of the research capability and evaluation that needs to go on. But I'm really curious about the consistent requests that I see for teaching the students preparing for primary care. Take environmental and occupational health data: It says, "Doctors should be skilled in using environmental and occupational health data in patient care and community leadership." Now, it's hard to disagree with that; but on the other hand, you can't agree with it because you don't know what it is. It's a fuzzy objective that doesn't mean anything as far as what it is that a primary care doctor needs to know. I think that instead of dealing with this discipline, preventive medicine faculty, as well as other specialty faculties, should define for the naive people in primary care what it is that would be important to add to their skills; that is, where the interdigitation should take place, but why marriage?

FARLEY: I believe community medicine, preventive medicine and family medicine have a lot in common. All three look at a community. A primary care practitioner, whether in general internal medicine, general pediatrics or family medicine says, "How do I give care to a population of patients?" Community medicine says, "How do we get health care to a population?" Furthermore, as the primary care practitioner serves a population of patients, he starts identifying a community, starts identifying problems of a community and has to pull in a lot of knowledge of community and preventive medicine. Here is where a close liaison between departments in teaching and research becomes particulary apparent. As an academic discipline, community medicine/preventive medicine, looks at the community from a distance and tries to figure out how

to get in, how to obtain knowledge of it. The primary care doctors are in close, observing the community firsthand, as reflected in individual patients and groups of patients. The bias of our program is that if you can train this primary care doctor to orgainze his data so it's analyzable—then, in addition to providing for efficient practice management, he may serve community needs through providing community medical professionals access to the problems of a community and to the problems of a population.

There is another area where we can derive mutual benefit, hopefully. We have never trained administrators for primary care. Administrators have been developed for hospitals, maybe for some huge clinics, but rarely for the needs of health care in a community. Preventive medicine and community medicine departments are beginning to look at this, and hopefully in conjunction with family medicine departments, for these are where the greatest repository of primary care commitment lie currently.

SCUTCHFIELD: It appears to me that family medicine and community medicine are two entirely separate and distinct disciplines. Dr. Farley's remarks emphasize this. The focus of community medicine is the community. Its base sciences deal with groups of people. The base sciences that relate to family medicine by and large relate to individual patient care: Medicine, pediatrics, clinical preventive medicine.

We need to recognize that these are two separate and distinct disciplines. That doesn't mean that I'm ideologically opposed to combined departments of family and community medicine. Community medicine, the older department, has been a logical place to start the movement because of its concern with primary and comprehensive care. We did it because of the press of the sixties, the neighborhood health center movement, and what not. But we've got to spin it off and get back to our responsibility, and our responsibility is the development of community programs, the development of community resources. This brings forth a point of disagreement with Dr. Castle. Development of community programs, community services, community resources can be exciting to medical students, and I've seen it be exciting. A third of my class in medical school (University of Kentucky) is in community medicine as a reflection probably of a very strong teacher. It's important for us to recognize that.

Another point is that family medicine right now is weak, albeit, and it's weak because the "traditional medical specialties" want to make sure they don't get their turf usurped, and we ought to speak to that. There's no reason for a family medicine residency to be in a community hospital for its inpatient beds except for the fact that the tertiary care specialists don't want their residents contaminated by primary care. It's important for us to recognize that. We've had to fight like dogs for curriculum time for family medicine, much less community medicine. That battle is going to continue and the traditional medical specialists will say, "That's all right, they don't need any family medicine in a formal environment, we're giving them a little bit of family medicine in pediatrics and in psychiatry and they don't really need that." It's the same kind of argument that Dr. Tapp posed for preventive medicine departments.

TAPP: May I comment on the problem that we've already encountered in our program in insisting that we have a nurse practitioner as a faculty member and a medical social worker as a faculty member. They have the same kind of appointment that the physicians have, and they are presented to the students and residents as role models as the kinds of people that they should be prepared to work with as fellow providers of primary care services. This is not generally accepted by a lot of the profession to whom we try to respond in the community. Some of our family doctors feel it's outright communistic to have a nurse practitioner working side by side with a family doctor. There is obviously a great conflict of interest there for some folks. On the other hand, we feel that the ultimate goal is to have a different kind of worker than what we've been accustomed to in the past and the only way to model this is by starting at the undergraduate and graduate training levels. But maybe I missed the emphasis you were trying to get at as to whether these people, these other kinds of primary care providers, really should be more free to operate in an open market than they are now.

They are increasingly operating as separate independent providers in many parts of the country.

FALK: I'll have my chance when I give my paper. I might just utter a few words of interdisciplinary education at the same time, same place, educational experiences among the definitions, the definition of primary care health team, preventive levels and those roles which are appropriate as con-

tinuing education with existing backgrounds compared to the planned education from the beginning.

I am talking about the key example, counseling and family focusing, nursing and the strength of the nursing practitioner with nursing school.

BAKER: Sue Horowitz asked me to mention the WAMI (Washington, Alaska, Montana, Idaho) program which is the Department of Family Medicine's effort to provide some experience in primary care. This is a regional educational program whereby every medical student who selects the family practice pathway is required to spend 6 weeks in a community clinical unit staffed by teams of MEDEX people. In Washington, MEDEX is our prototype new health professional.

PAYTON: Before proceeding further, we need some definitions of community and preventive medicine and primary care with which we can operate during the balance of the conference.

BARKER: I propose that we focus first on a definition of primary care and that as we do so we attempt to avoid the family medicine model or any of the several other emerging primary care specialty models per se (e.g., pediatrics, internal medicine). Clearly each of these models has particular attributes, but to discuss all of these is another part of the debate. What we need is a broad working definition of primary care to which we can then address our analysis and discussion of the contributions to be made by preventive and community medicine. Furthermore, I propose that we not enter into an exercise to define community and preventive medicine at this point. These are vast areas, limited parts of which are directly pertinent to primary care. These pertinent parts should emerge in the subsequent invited presentations and discussion.

STOKES: That is a very good statement. I agree with that completely.

FARLEY: I disagree with something Dr. Barker said. Basically, I feel that some of the issues of what is primary care internal medicine, primary care pediatrics and family medicine, do need to be discussed. I propose that the access of family medicine to the family is not because we're family specialists but because we'll take care of people regardless of age, sex or disease. So we're exposed to the family and hopefully we develop and use knowledge that makes us responsible for the care of all the members of that family. If one member comes to us, part of our responsibility is to make sure that others get the care. If they are already getting it, fine, we'll just put it down that they are getting care elsewhere. A primary care internist essentially says he'll take a person regardless of sex, disease, or age; and a primary care pediatrician says regardless of sex or disease but limited by age. Then we get into the fringe where by default, in reality, OB-GYN people render a lot of primary care. They are not equipped for it, but they render it because that's where the woman goes for her annual physical, and she gets minor care there. And so I'll say there, it's because of sex. In others words, these other primary care specialties end up with family only if the pediatricians, internists and gynecologists are working together as a group regardless of age, sex, or disease.

The family medicine practitioner can say as an individual "I'm concerned or I'm responsible regardless of age, sex or disease." I should say at risk regardless of age, sex or disease.

BARKER: That's very compatible, I hope, with what I said. I just felt we shouldn't allow our working definition of primary care to get locked into the specific attributes of a particular subgroup of primary care practitioner.

HALL: Primary care ought to be definable without reference to those who, in fact, provide the care. I don't have a definition. I wonder if anyone else has heard of a definition of primary care that excludes any reference to that.

McWHINNEY: I could answer your question. This is something we've concentrated on recently in a committee on primary care set up by the local health council. The first thing we had to do was to define this, so for what they're worth, I'll give you our definitions. We defined two terms: "Primary health care" and "primary medical care." Primary health care is the care provided by those components of the health services which are directly accessible to the public. Primary medical care is the care provided by physicians who are directly accessible to the public. We went on to distinguish between the two broad functional categories of primary care professionals who might provide either health care or medical care: (1) those who enter into a tenured or contractual type of relationship with individuals and/or families, not only to be available to them but also to guide them and to accept a continuing responsibility even after referral; (2) those who deal with problems on a more or less episodic basis. Examples would be an emergency room physician or a multiphasic screen-

ing clinic nurse who is concerned usually just with one episode and/or referral out and then the responsibility stops.

I suggest that for the purposes of discussing the roles of community and preventive medicine that we focus on the definitions of primary care which embrace personal commitment to an individual for continuing care. This is a value judgment, but one I think we in family medicine would certainly accept.

WALKER: It is a useful suggestion. The question then becomes where do we see the role of management, prevention, etc., within this definition of primary care?

STOKES: Conceptually, Dr. McWhinney is correct. He has focused upon what is commonly thought of as the "trusteeship function," the idea that one feels responsible and continuously responsible. If you have a patient or a panel of patients, you feel personally responsible for anything that happens in a health way to those patients. That, conceptually, is the nub of the issue.

GIBSON: I'd like to expand a little upon the trusteeship issue. As one interested in providing health care, I have found that I could think more productively by focusing primarily upon health needs and other characteristics of an aggregate of individuals—aggregated as families, as peer groups, and in a community—rather than beginning a priori with definitions of wholesale medicine and retail medicine and so forth. I found these latter to be much too devisive. Accordingly, it's been natural for me to think of primary care, family centered and community centered, as being important concepts.

There has been a great gulf between what has been traditionally public health and traditionally clinical medicine. The clinicians have all been busy with everyone who walks in. Public health has traditionally been denied the role as clinician. So we have had many people in our society who, lacking financial, cultural and other means of access have been without a "trust officer" for their personal health care needs. The crucial need in training clinicians in our medical schools is never again to get cut off from a feedback loop as to where the problems are. Primary medical care education must be community centered, not merely for the panel of families that can keep us very busy in the model family practice unit, but for all the other people who are there to whom, while respecting their privacy, we have a right to be, an obligation to be, accessible.

PAYTON: Speaking about the way physicians view their community and the responsibility they do or do not have for that community, it's always impressed me that physicians by and large take the attitude out of sight, out of mind. If it's not a patient that presents him or herself to the office, to the hospital, it's not someone who—for whom he has that trusteeship responsibility.

I think that is a real problem and it draws into question how we define the contract for a physician. Is it a social contract or an individual contract with a single patient, or maybe a patient's family, if we're talking about family medicine.

The way I relate that back now to the general discussion is that we raise some real issues of contract when we talk about prevention of illness because this is not something that is traditionally thought of by the patient or the community when they look at the physician.

We have a responsibility in this situation if we look at the global effects of health services and try and recognize their economic values. If we consider that we are "trust officers" for the health of our communities at large, as would be suggested by those here talking about community medicine and preventive medicine, then we have an education responsibility to make sure that patients come to expect that kind of thing from those of us providing primary care.

FALK: I'm afraid we also have to identify in our definitions a very uncomfortable borderline between being health professionals and health. I think that clear examples are the importance of politics and economics to health status. We have to be crisp in our definitions, understanding that health care, particularly medical care and what its practitioners can offer, must be clearly differentiated from efforts to maintain or obtain health for society as a whole. It gets us into an extremely difficult borderline because society will tolerate certain things in social change.

It will look to its priest, doctor, its community health doctor in certain ways, depending upon the shifting winds of the total socio-political scene. I'm referring specifically to the atmosphere in the civil rights revolution of the 1960's; the 1968 election; the impounding of Federal funds and the role of the medical student in all of these matters, and how all of these have affected community health.

THOMSON: Somehow or another I am reminded of the girl who said that she wouldn't sleep with a man for $2.00. "What do you think I am, a prosti-

tute?" He said, "Well, will you do it for a million bucks?" She said, "Well, that's a different thing." He said, "It's already defined what you are, now we are just bargaining for price!" This is fundamentally what we are doing here—it's not so difficult to define a primary physician. It shouldn't be difficult. You could just go and look at what my dad did in his practice because he was the primary physician. He was the only physician so that made it easy. You could tell what he did and you can define that.

Our problem here is that we are trying to build a definition that refers to the process of the delivery of primary care in a complex modern society. Now, are we trying to define the credentials of the primary physician, or content of primary care, or are we trying to define the process of it? We're not really hung up on the definition of the primary physician or what is primary care, but we each have our different levels of what we'll buy or what we'll pay for as far as what the process of delivery is about. Does this divisiveness make a difference so far as reaching a conclusion for defining this?

SCUTCHFIELD: I would disagree to a certain extent with Dr. Thomson because we're trying to circumscribe the scope of primary care, and the comments that Drs. Gibson, Payton and Falk have made are valuable in delineating and delimiting the trusteeship concept—the trusteeship not only for health care, but also for health within the community. It's important that we define this as a part of primary care. And that, incidentally, reflects a real role that community medicine has to play in impressing whatever student or trainee, educator or educatee of their responsibility, not only for health care but also for health. They must assume this trustee responsibility.

STOKES: There is a real argument developing here and I want to come down against some things that have just been said or implied. If I were responsible for preventing disease in a community, I would not have a job since society has not worked primarily through the health services route. It's not the most efficient way of preventing disease. Environmental intervention by public health, by housing, by highway design and environmental design are really more important and have a greater impact on life expectancy from birth, infant mortality and other major health indices than have health services. Jack Geiger and colleagues showed very well the limitations of health care services as a means of influencing the health effects of the social and economic environment. They, as physician advocates, tried hard to raise the Mississippi Delta area up economically, to change the social and physical environment, to act as health officer within the area, and so forth. They had to fall back. That is, they learned the limitations of health services as an operational basis for that type of intervention. This is why I object to putting primary care in the position where it's really encompassing the classical functions of public health and other functions of government, as exercised through the police power of the state.

McWHINNEY: I would agree with that. However, it's a mistake to try to erect a sharp dividing line there. I'd rather see it as a spectrum. As you start at the primary care end of the spectrum, you have a physician who predominantly relates to individuals. But then responsibility gradually extends outwards to the family, and to the practice as a group, which is a fairly new concept. Extending beyond this, one encounters responsibility to the community as a whole and then to the country and the world eventually. The ways in which the physician intervenes to solve the kind of problems that Dr. Stokes was talking about are quite different from the ways he goes about solving his individual patient's problems. And so, I would see the people at the two ends of this spectrum as really having rather different roles and attitudes. One is primarily a personal physician. The other is primarily a health care administrator. They share certain basic sciences with which to fulfill their responsibilities to those they serve. Epidemiology contributes to both and it should be looked on as underlying both.

I was rather intrigued by something a veterinary epidemiologist in our department of epidemiology said to me, which pinpoints our problem. He said that he found in teaching veterinary students he had no difficulty making them think in terms of the herd, but with medical students he had great difficulty making them think in such population terms. This is part of the challenge I am facing with family physicians—those physicians who are actually physicians for individuals but have also this capacity for thinking and functioning in terms of the herd.

ABRAMS: The prototype of the physician in whom all of this is called for is the individual family doctor in a rural community. He's also the parttime health officer. He's responsible for everything. There are quite a few of them and quite a few places that need people like that.

HENDERSON: I originally drifted into public health through a situation like you just described, and then when I got into more complex situations working in public health, I found that I was not supposed to be concerned about individuals anymore, which was very upsetting.

ABRAMS: Before closing our discussion of definitions, I would like to invite comments on Dr. Castle's distinction between family medicine and family practice.

McWHINNEY: I agree with Dr. Castle's distinction between the two; that is, family medicine as a body of knowledge, and family practice as a method for providing primary care. One source of this body of knowledge grows out of a conceptualization of what practitioners have been doing for a very long time and have learned to do unconsciously just by trial and error.

CASTLE: I have a problem accepting such conceptualization. I really question whether there is much of the ideal of good family medicine to be found in "family practice" as it has existed in the past.

CHRISTIAN: Agreed, because if you limit your concept to someone who takes care of anybody regardless of sex, age and disease, you don't promote the concept of looking at people as part of families. In selecting a family practice residency, I was specifically concerned with providing health care to small groups, namely the family. However, I really don't see why there is such a distinction between family practice and family medicine.

GIBSON: I'd like to reinforce this distinction. I find it a fruitful one. There has been an enormous deficit of research and study of the family in health. And there are many, many kinds of disciplines that need to be concerned. Perhaps one can say that the family practitioner has more crucial need for research in family medicine than anyone else among the clinicians. But a specific prerogative or monopoly should not be implied. For instance, at Stanford, the social workers are doing very beautiful research on family medicine and health as it relates to the parents of children with leukemia. These social workers are doing something informative to all of us. The internist, the subspecialist, needs to hear it as well as the family practitioner.

McWHINNEY: I wonder if putting all our emphasis on the family isn't a bit too restrictive. The essential difference between the family physician and the specialist is that he sees people as a whole in their setting, and the families are probably the most crucial part of the setting. It's not the only part. There are other aspects to the individual's social environment; for instance, his work group and his community.

ABRAMS: Would you say that on occasion "family" may be a community, or a factory group, or whatever?

FARLEY: Economically it can be, but I would hate to be an industrial physician and say I was taking care of families.

ABRAMS: But most industrial medicine in this country is done by general practitioners or family practitioners.

FARLEY: Right, but it's not family medicine. It's different—I won't include that in my family medicine definition.

KISSICK: The rest of you are quite informed and have read and written in the area under discussion. I've reflected some on it, mainly at the prodding of our dean because he was under great pressure from the legislature of the Commonwealth of Pennsylvania to organize a department of family practice. As I listen I have two concerns: First, is around the family. It appears to me that we are struggling with a 1980 problem with a 1950 vocabulary, and we've got to be truth oriented. Most of us are medical educators, and the medical students we are now selecting will reach the middle of their professional careers, if they are not wiped out by myocardial infarctions, in the year 2000. Even though I'm a long range planner, that staggers me! I don't know what's going to happen to the family over those decades, but from the limited reading that I've done of Warren Bennis in the *Temporary Society* and *Beyond Bureaucracy* as popularized by Alvin Topler, the family may not exist as an institution, as a social institution as we now know it, in the year 2000 and beyond.

Is the family an enduring concept? It's been here since biblical times. It keeps evolving. Maybe it's going to be a lot different than the way we define it and study it at the present time. If we're really interested in family medicine we have to put great emphasis on the sciences basic to understanding some of these kinds of problems.

The next question is, does it make a difference? The few published studies are somewhat discouraging—most of all, George Silver's study at Montefiore Hospital where they gave superb comprehensive, family-centered medical care with a team of superb health professionals—and I make that last statement

advisedly because I worked with those people. There was absolutely no difference between the control group and the group that was receiving comprehensive health care.

But does it make a difference? If we're advocating it we're functioning under the assumption that it does, and it may. I hope it will, but it's incumbent upon us to demonstrate that it does, and if not, to modify it.

CONTENT AND METHODS

This section, in two parts, reviews experiences of several existing Family Medicine programs in developing content and method of preventive/community medicine education for primary care.

Dr. Baker outlines a core set of learning objectives in preventive/community medicine for medical students and residents preparatory for family practice. The objectives, developed by a multi-disciplinary faculty committee at the University of Washington, are subdivided into competencies in the domains of knowledge, skills, and attitude. Dr. Thomson's discussion endorses the competency-based methodology for defining skills and knowledge; however, he cites several potential shortcomings of the system. First, systematic learning tends to limit the student's conceptual range. Second, the system needs stronger emphasis on developing preventive attitudes. Third, cognitive facts may become irrelevant as medical knowledge advances. Solutions to these perceived shortcomings are discussed. General discussion focuses first on the issues raised by Dr. Thomson. This is followed by suggestions that both consumer demands and measures of health care outcomes should be used, along with physician performance in delineating educational objects for primary care. The discussion concludes with several statements regarding the potential for medical school to effect attitude change.

Dr. Treat's paper describes the type of educational resources and methods conducive to effective preventive/community medicine education in primary care training programs. Examples are cited from the University of Rochester's Family Medicine Program. Dr. Henderson's discussion compares and contrasts point by point the primary care educational milieu at the Pennsylvania State University College of Medicine at Hershey with that in Rochester. Dr. Hall's discussion provides a third model *vis a vis* preventive/community medicine education, that of the Rockford (Illinois) School of Medicine, based primarily in existing community practice settings. All the authors establish the importance of a community setting for primary care education. Some participants, however, emphasized the danger of isolating primary care training when confined only to community hospitals. They expressed the need of assuring a prominent place for primary care within the medical school if it is to be visible to the student, if it is to benefit from the prestige of

the school, and if it is to be effective within the power structure of the institution.

The brief general discussion addresses the critical issue of financing for both education in and delivery of community-based, preventive health services. Limitations in current third party and prepaid plans are noted, and the potential for governmental or private corporate actions to overcome these is pointed out.

2

COMPETENCY-BASED OBJECTIVES IN PREVENTIVE MEDICINE FOR THE FAMILY PHYSICIAN

Richard M. Baker

Family medicine, a burgeoning new discipline, is beginning to define itself. Preventive medicine and community medicine are clearly a part of any family practice. Teaching competencies in these fields should serve to modify the primary care delivered by the graduates of family practice programs. In this sense we now have a great opportunity to influence delivery of primary care in the United States. We must, therefore, carefully define the knowledge, skills, and attitudes of preventive and community medicine in relationship to the "ideal" future family physician.

The definition of preventive medicine competencies for primary care establishes the framework for developing educational objectives, teaching strategies, and evaluation methods. Such a process of definition is in contrast to the older, more casual attitude of suggesting, "Why don't we have them take a course in the School of Public Health?" or, "Community medicine ought to have some seminars." "Competency," in this approach, refers to an observable ability in an area, such as preventive medicine. It seems to be formed by a combination of knowledge, skills, and attitudes (Mager, 1962). The competencies defined by different training programs may well be quite disparate until we are able to demonstrate that the proposed abilities enhance patient care and/or physician satisfaction. Two levels of competencies are likely to emerge—those common to any good family physician and those to be achieved according to individual practice plans and interests.

The Department of Family Medicine at the University of Washington has established "Competency-Based Objectives for the Family Physician," (Baker & Gordon, 1974) including objectives in preventive and community medicine.* Though most of the document can be related to preventive medicine defined broadly, those objectives most directly related to it are reported in the main section of this paper. We have based these upon the arbitrarily defined "core competencies" of the family physician successfully completing our postgraduate (residency) training program. Our initial list of objectives was generated in a series of three meetings of fulltime faculty in the Department of Family Medicine. This draft was then modified by input from family physicians in the community and in rural areas involved with the teaching program and by faculty of other departments. Subsequently, residents and medical students have assisted in modifying the objectives. Last, we have found some objectives too ill-defined or trivial to remain, and we have added others that have become apparent in the two years since initiation.

Many objectives are most appropriate for the undergraduate curriculum. The Department administers a Family Physician Pathway for medical students during their clinical years. Seminar topics from the course "Preventive Medicine in Primary Care," taught conjointly with the School of Public Health faculty, appear in Table I. Other objectives are approached in the required clerkship in family medicine at rural sites or in clerkships or electives in other departments.

Residency training seems the appropriate time for the achievement of most objectives in community medicine and practice management. It is only then that the trainee has acquired enough confidence in his basic medical skills to devote attention to the "process" of family practice. Faculty members assess resident performance in areas of community medicine and practice management utilizing a questionnaire which appears in Appendix I, this chapter.

"Health maintenance" can be audited on the charts of residents by following such a flow sheet as illustrated in Appendix II, this chapter.

The process of modification of our stated objectives underlines the need for making and writing them down. Students, residents, faculty members of Family Medicine and other departments have utilized the objectives heavily in their curriculum design and

* Persons who contributed to the development of these objectives are: Drs. DJ Bone, MA Browder, DK Clawson, WM Cole, WB Howe, JR Jacobs, JA Lincoln, RM Oakes, TJ Phillips, CK Smith, WC Stolov, and RV Twerslu. M.S.W.

TABLE I. Conjoint 462—Preventive Medicine in Primary Care[1]

SEMINAR TOPICS:
- The scope of preventive medicine
- Geller Tables and health hazard appraisal
- Hypertension
- Cancer of the cervix
- Diabetes

SUGGESTED TOPICS FOR STUDENT PROJECTS:

SCREENING FOR SPECIFIC DISEASES
- Bacteriuria
- Tuberculosis
- Breast cancer
- Cancer of colon and rectum
- Glaucoma
- Syphilis/gonorrhea
- Coronary artery disease (diet & exercise)
- Lung cancer
- Prostatic cancer

OTHER TOPICS
- Screening in pregnancy (rubella, Rh factor)
- Effectiveness of the screening physical exam
- Automated multiphasic screening procedures
- Factors in patient compliance
- Seat belts
- Genetic counseling for selected diseases
- Nutrition
- Environmental hazards (smog, heavy metals, asbestos, pesticides, etc.)
- Obesity
- Immunizations
- Alcoholism
- Smoking
- Drug abuse

[1] Elective course developed and taught by Dr. Ann A. Browder and Dr. William M. Cole.

evaluation. Objectives in preventive medicine and community medicine make relatively concrete and finite what are sometimes considered amorphous fields. The following sections in outline form are the objectives most closely related to preventive medicine as excerpted from the "Competency-Based Objectives for the Family Physician" (Baker, 1974). The numbering corresponds to that of the complete document.

2.0 CLINICAL MEDICINE

2.1 KNOWLEDGE

2.12 *Disease Information*

For minimum competency in managing disease, the family physician must have sufficient knowledge of common diseases and uncommon but important ones to permit diagnosis and treatment or referral. "Disease" for the family physician includes not only conditions due to physical stress, but those due to psychosocial stresses as well. "Uncommon but important" diseases are those that must be understood because of potentially serious consequences that may be averted or postponed (e.g., glaucoma, diabetic ketoacidosis) or because the disease should be understood as a model of a pathophysiologic process (e.g., muscular dystrophy, systemic sclerosis, cerebral palsy). Knowledge of any given disease should include:

- 2.121 Prevalence (approximate, including populations at risk)
- 2.122 Manifestations at various stages
- 2.123 Diagnosis (including hazards of procedures)
- 2.124 Natural course, including approximate morbidity and mortality rate
- 2.125 Complications
- 2.126 Effective interventions
- 2.127 Preventive measures

2.15 *Evaluation of Preventive Measures*

All of medicine can be considered preventive since most actions are taken with the expectation or hope of averting worse disease. However, the term has come to refer rather specifically to diagnosis and treatment while the patient is as yet unaware of illness. In the absence of symptoms, the physician is totally responsible for what he initiates. He is not, as in responding to needs also perceived by the patient, protected against deficiencies in the state of the art of medicine. He must be able to identify and evaluate available measures before launching a program of prevention. The following questions are the most cogent for the logical approach to the discharge of this responsibility:

—Has the disease a morbidity/mortality that makes it an important one to prevent? The more serious the potential illness, the lower the prevalence needed for the disease to be considered important.

—Can one detect one of the following stages of the disease process?
–A risk exists?
–The disease is present but asymptomatic?
–The disease is present with minimal symptoms?
—Is the detection procedure such that:
–the sensitivity and specificity (the number of false negatives and false positives) are acceptable?
–it is acceptable to the patient?
–the cost and risk of test are reasonable in relation to the yield?
—Does intervention at the point of detection make a difference in the morbidity/mortality of the disease greater than that which can be exerted when symptoms are most easily appreciated?
–Is it reasonable to accept the risk of intervention for the gains anticipated?
–Is the intervention acceptable to the patient and will the patient comply with the regimen?
—Are resources such that:
–follow-up of positive screening tests and subsequent intervention can be carried out?
–the proposed screening and intervention are the best use of available resources?

2.2 SKILLS

2.23 *Health Maintenance Skills*

For individuals and for the practice, the family physician must develop a program to maintain health and prevent disease. Standard procedures should be woven into the system to ensure availability of all indicated measures to all patients at risk. Members of the health care team must be able to maximize compliance by patients with recommended procedures and schedules, consistent with the attitude of respect for the individual's own responsibility. Health maintenance is the anticipation of problems and appropriate action in situations of risk to individuals of known physical, sociocultural, environmental, and emotional make-up. Therefore, one may advise breast exams, or even mammograms, every six months on a woman with a strong family history of breast cancer, or one may spend more time than usual preparing a given child for elective surgery. Health maintenance forms display the history and plan of preventive procedures. An example set of forms may be seen in Appendix II.

2.231 Occupational medicine
2.231.1 Assessment of common risks
2.231.2 Injury prevention techniques
2.231.3 Evaluation for work "fitness"
2.231.4 Management of industrial compensation cases
2.232 Immunization—accepted schedules and techniques
2.233 Risk evaluation—e.g., using Geller Tables
2.234 "Screening" procedures—See "Diagnostic and Preventive Procedures," Section 2.24, and "Evaluation of Preventive Measures," Section 2.15.

2.24 *Diagnostic and Preventive Procedures*

2.241 Office laboratory procedures: urinalysis, urine acetone and bile; hematocrit; white blood cell count; differential; peripheral blood smear; sedimentation rate (Wintrobe Method); throat cultures, sensitivities; Gram stains; tests for pregnancy; mono spot test; microscopic evaluation of vaginal discharge, urethral discharge, skin scrapings.
2.242 Audiometry and visual testing
2.247 Pap smear
2.2422 Tonometry
2.2424 Pulmonary function testing— FEV, VC, MEFR

2.25 *Treatment Procedures*

In the following lists we try to enumerate procedures and some management skills that should be a part of the family physician's minimal repertoire.

2.254 Rehabilitation management
2.254.1 Evaluation of a disabled patient and his environment in order to determine the need for a special rehabilitation center and the ability to solve the problem with the local community resources.
2.254.2 Prescription of basic physical therapy and occupational therapy for common ambulation problems and pain and motion problems.
2.254.3 Use of behavioral principles for

modification of problems in maintaining function; chronic pain, use of drugs.

2.254.4 Management of disabled individuals involving the family home situation, visiting nurse, and other community resource persons.

2.255 Obstetrical management

2.255.10 Clinical assessment of pelvic adequacy

2.255.12 Fetal monitoring

2.255.14 Prenatal care

2.255.16 Post partum care

2.255.17 Genetic counseling

2.256 Management of newborn infant

2.256.1 Immediate care in delivery room of normal infant

2.256.2 Detection of acute and life-threatening problems (tracheo-esophageal fistula, diaphragmatic hernia)

2.256.4 Detection of neonatal problems during transitional phase (first four hours of life) and later phases: respiratory distress syndromes, transient tachypnea, recurrent apnea, infections, hemolytic disease, jaundice, metabolic abnormalities (hypocalcemia, hypoglycemia), CNS abnormalities

2.256.5 Management of common problems of the premature infant: monitoring growth and nutrition, physiologic handicaps

2.257 Gynecologic management

2.257.2 Abortion—ambulatory patient

2.257.3 Contraception counseling

2.257.4 IUD insertion

2.257.5 Diaphragm prescription and fitting

2.258 Behavioral management

2.258.5 Counseling

(a) Children and parents: rearing practices, school problems, discipline, responsibility

(b) Adolescents: sex, school problems, peer relationships, substance abuse (drugs, medications, alcohol, cigarettes)

(c) Adults: obesity, substance abuse, problems with job, relationships, feelings.

(d) Aged: isolation, retirement, feelings, loss of function

(e) Couples: communication, sex, other interpersonal problems

(f) Family: communication, role problems, management of problems in one member, newly emerging patterns of family life

2.258.8 Anticipatory guidance: This skill stems from sensitivity to potential stresses because of the special nature of the stress (hysterectomy, child leaving home, etc.) or of the individual

2.258.9 Patient education: ability to inform patients in an appropriate manner, language, and detail about their problems from the physician's point of view and about the physician's plans and expectations

2.258.10 Self-knowledge: cognizance of own attitudes, problems and strengths in dealing with other persons. Ability to act in an accepting, objective manner with sensitive or difficult topics (deaths, sexuality, "deviance")

2.3 ATTITUDES

2.37 The prevention of problems should be sought whenever possible; risk should be evaluated and minimized when feasible for the individual patient.

2.38 Patient education should be carried out to whatever level is appropriate.

3.0 PRACTICE MANAGEMENT

3.1 KNOWLEDGE

3.11 Legal Aspects of Family Practice

3.111 State and national regulations: reporting communicable disease (VD, hepatitis, etc.); premarital exams; preschool exams, neonatal procedures; food handlers' screening; qualifications for driver's licensure; informed consent; sterilization and abortion permission; obtaining court orders for treatment; commitment

procedure and other mental illness problems; mental incompetence.

3.118 International travel requirements for immunizations

3.14 Roles of Health Personnel

Understanding training, competencies and roles of nurse practitioner, physician's assistant, office nurse, nursing assistant, technician, social worker, physical therapist, medical secretary, receptionist, pharmacist, dietitian.

3.2 SKILLS

3.23 Team Approach to Patient Care

3.231 Sharing *responsibility* for patient care with another health professional: the degree of sharing will vary widely according to the competencies of the health professional (nurse practitioner, Medex, Primex, Physician's Assistant, etc.)

3.232 Cooperation for patient care with others in the medical care team: office nurse, nursing assistant, secretary, other assisting personnel

3.233 Conjoint management of patient problems where indicated with other physician, social worker, counselor, psychologist, public health nurse, physical therapist, dentist, pharmacist.

3.24 Clinical Records

3.241 Problem-oriented methods: problem identification, problem list, ambulatory follow-up notes, hospital progress notes, use of records by all members of health care team.

3.242 Filing and retrieval system: Morbidity Index (Coding—ICDA, RCGP, etc.), age/sex, geographic distribution, others

3.243 Data collection devices: questionnaire, interview by office personnel

3.244 Data compilation and display

3.244.1 Chart system

3.244.2 Clerical information

3.244.3 Data base

(a) Family structure and health

(b) Past history

(c) Personal and social history

(d) Physical examination

3.244.4 Laboratory values

3.244.5 Medication records

3.244.6 Flow sheets

(a) Health maintenance

(b) Management of common problems —hypertension, diabetes, etc.

3.245 Data recording—dictating, computer

3.246 Recall system: "tickler file"

3.247 Clinical audit for: patient care, continuing education, management, research. Example: Patient Care Appraisal

Set criteria for "quality" management

Pose questions for chart review

Identify charts

Review (by clerical personnel ideally)

Collate data

Evaluate

Alter practice if necessary

3.248 Transfer of information to: third-party payers, consultants, hospitals, other primary care physicians, Public Health Department

3.3 ATTITUDES

3.31 The physician's professional role must be planned into available time, consistent with other commitments, especially the family role.

3.32 Tasks and responsibilities should be shared among coworkers and other health professionals.

3.33 A medical practice should provide care that is available geographically, financially, and temporally.

3.34 Since it is impossible to understand a patient in a single encounter, he should ideally be observed and followed up over a prolonged time period.

3.35 A medical practice should facilitate appropriate use by as much of the community as possible by making the procedures and environment acceptable to persons of wide age range, cultural and racial background, and socioeconomic classes.

3.36 The physician's practice should facilitate his own happiness.

4.0 COMMUNITY MEDICINE

Community Medicine has as yet no fixed definition because it is such a wide-ranging field. The term

may be used to designate all those aspects of the organization of practice which impinge on the delivery of care, the relation of the practice to its community, locally and nationally, and the relationships of a variety of factors within the practice to each other (also see "Practice Management," Section 3.0). The family physician must integrate his practice so that resources available for health maintenance, disease prevention, and medical care delivery give the best care possible to the most people, to those within the practice and the community at large. He needs to know the community in two ways—as the composite of health resources and as an entity itself, requiring prescription and care.

4.1 KNOWLEDGE

4.11 *Health needs of the community*, both objectively and as community expectations

4.111 Perceived needs by community groups, individuals

4.112 Health planning: national priorities, state emphasis, regional "comprehensive health" planning body (usually for one or several counties), and local community plans and desires.

4.113 Evaluation by physician: data necessary to plan involvement and improvement in community health.

4.12 *Health Resources of the Community*

4.121 Public Health Department

Traditional provision: sanitation control (water, milk); environmental quality (control of pollutants); collection of vital statistics (birth and death registration with compilation of corresponding rates, including infant mortality); surveillance of disease frequency and investigation of epidemics; care of the indigent.

Recent trends: provision of direct medical care to special groups in the community (such as persons eligible for maternal and infant care or children and youth clinics, selected minority groups) or care for specific conditions (VD, family planning, tuberculosis). Screening and follow-up of chronic diseases is increasingly done (hypertension, cervical cancer).

Public Health Nurse:

Basic health teaching
Maternal and child health
Mental health
Communicable diseases
Community resources

4.122 Visiting Nurse Association (usually fee-for-service)

Assessment of home for nursing care
Home nursing care
Home health aid
Physical therapist

4.123 School health—often Public Health Nurse paid by the school district

4.124 Community Mental Health Center—(if available) government supported plus fee-for-service

4.125 Social Services

The following agencies are peculiar to the State of Washington, particularly to the Seattle area. Most will have counterparts in other areas.

4.125.1 State Department of Social and Health Services is a super-agency encompassing several divisions:

(a) Division of Public Assistance

Aid to Families of Dependent Children
General Assistance
(Old Age Assistance, Blind Assistance, and Disability Assistance shifted to Federal Government January 1, 1974, under the SSI Program [Supplemental Security Income])

Services for all the above categories remain with the State: Medicaid, food stamps, chore services.

(b) Services for the blind provide medical care, rehabilitation and vocational services.

(c) The Division of Vocational Rehabilitation serves handicapped persons who have potential for becoming employable.

(d) (Health services are listed above.)

4.125.2 State Employment Security provides assistance in procuring jobs; unemployment compensation.

4.125.3 State Department of Labor and

Industries processes industrial claims; provides a rehabilitation center.

4.125.4 Private agencies

(a) American Cancer Society—transportation to medical appointments for cancer patients; patient education services; sick room equipment, hourly nursing services.

(b) American Red Cross—short-term emergency assistance for servicemen and assistance to victims of natural disasters and fires; services to aged.

(c) Easter Seals Society—provides appliances, rehabilitation equipment, orthopedic shoes; Information and Referral Service.

(d) Salvation Army Welfare Services Bureau meets many unmet community needs, e.g., emergency assistance for food, lodging, medicine, counseling.

(e) St. Vincent de Paul—social services section provides emergency assistance and counseling.

(f) Jewish Family Service—provides limited financial assistance and counseling.

(g) Volunteer services organized by church groups—provide transportation for medical appointments, emergency assistance.

(h) Service clubs and fraternal organizations may provide help in specific situations.

(i) Crisis agencies—local groups to provide crisis assistance and referral.

4.125.5 Counseling resources

(a) Family Counseling Service, as well as church affiliated agencies (Catholic, Jewish, Lutheran, Unitarian, etc.). Check telephone directory "yellow pages" under "Social Services." Fee based on ability to pay.

(b) Community mental health clinics. Fees based on ability to pay.

(c) "Counselors—personal problems" is a listing in the telephone directory. Social workers and psychologists in private practice are included.

(d) Division of Public Assistance provides some counseling services through Family Services, Adult Services, CPS (Children's Protective Services).

(e) Hospital social workers and chaplains

(f) Counseling with Vocational Rehabilitation and Services for the Blind

(g) Legal Aid and Lawyer Referral Service (Bar Association).

(h) Schools—principals, counselors, teachers, psychologists, nurses and social workers

(i) Red Cross provides counseling for servicemen and their families; aged.

(j) Lay groups—Alcoholics Anonymous, Weight Watchers, Planned Parenthood, smoker's clinics, prenatal classes, drug rehabilitation groups, etc.

4.125.6 Other local resources

Migrant health, Indian Health Service, National Health Services Corps, Regional Medical Program projects, etc.

4.126 Referral resources

Consultants

Medical Center

Special resources: regional comprehensive health planning agencies should have files on available resources for special problems, such as blindness, speech and hearing problems, mental retardation, renal failure, muscular dystrophy, congenital disorders, leukemia.

4.127 Medical emergency resources—firemen, police, rescue agencies, military

4.128 Nursing, rehabilitation facilities

4.13 *Beneficial and harmful influences upon health, illness and medical care in the community: demographic characteristics (employment, age, race, income) and environmental hazards (pollution, industrial hazards).*

4.14 *Elements of Hospital Organization and Relationships*

4.141 Tripartite system of hospital governance: rights and obligations of board of trustees, medical staff, hospital administration.

4.142 Staff by-laws: Selection and approval procedures, qualifications, restrictions.

4.143 Key personnel: administrator, board of trustees, medical staff officers, business manager, director of nursing services, laboratory director.

4.15 *Elements of Organization of Skilled Nursing Facilities*

4.151 Ownership: individual, partnership, proprietary corporation, non-profit corporation

4.152 Nursing home governance: administrator, board of trustees (except in individual or partnership-owned nursing homes), director of nursing services, medical review board.

4.153 By-laws governing operation of facilities—administrative and patient care policies.

4.154 Key personnel: administrator, board of trustees (where applicable), business manager in large facilities, director of nursing services, social worker.

4.155 Physicians' services required: admission to skilled nursing or rehabilitative care only upon recommendation of physician and patient remains under care of a physician. Medical findings and orders must be made available to the facility prior to or at the time of admission. Patient information includes current medical status, diagnoses, rehabilitation potential; summary of courses of prior treatments and orders for immediate care of patient. Patient's total program of care to be reviewed and revised by attending physician at least once every 30 days.

4.16 *Organized Medicine in the Community*

4.161 Medical societies—local, State, National

4.17 *Community communication network and disaster plans*

4.2 SKILLS

4.21 The assessment of one's own expectation from the community and the ability to choose suitable living arrangements and lifestyle.

4.22 Integration of practice into the community to improve health care and satisfy personal goals.

4.23 Effective relationships with other health resources in the community.

4.24 Influence in a community for improvement of health care and of related processes.

4.3 ATTITUDES

4.31 The assumption of responsibility for providing health care in a community.

4.32 Acceptance of the community's lifestyle and the role of the family physician in the community.

4.33 The understanding of community resources as an integral part of the health care system; cooperation is essential in a joint effort to maintain the health of the community, prevent disease, and care for problems.

In summary, we have found that our initial attempts to codify the knowledge, skills, and attitudes of the family physician have yielded rewards in virtually every aspect of our educational effort. Though much refinement and frequent changes need to be carried out, the joint statement of objectives provides an openness of purpose and a commonality upon which to organize the educational effort.

REFERENCES

Baker, Richard M and Michael J Gordon 1974. Competency-Based Objectives for the Family Physician Asso for Hosp Med Ed. 7(2):2–16.

Mager, Robert F 1962. Preparing Instructional Objectives, Fearon Publishers.

APPENDIX I

Family Medicine Resident Performance Evaluation [2]

The following items are excerpted from the three-page questionnaire filled out by all full-time faculty members for each resident quarterly. The rating scale is specified on the questionnaire and space for comment is provided.

PART I BASIC SCIENCE SKILLS AND ATTITUDES—APPROACH TO PROBLEMS

PART II CLINICAL SCIENCE

A. *Clinical Science Knowledge*

Understands principles of clinical physiology and pathology

Demonstrates knowledge of common and otherwise important diseases

Demonstrates knowledge of clinical behavioral science (human development, behavioral disorders, psychiatric disorders, psychiatric intervention, psychosomatics)

Demonstrates knowledge of clinical therapeutics

Demonstrates knowledge of preventive medicine (concepts of epidemiology, evaluation of recommendations for detection and intervention)

B. *Clinical Science Skills*

Demonstrates skill in guiding patients through health care system (appropriate referral to other health resources, maintenance of communication, coordination of care)

Demonstrates ability to implement an appropriate health maintenance program for patients

C. *Clinical Science Attitudes*

Sets realistic goals in management of patient problems

Maintains an attitude that help should be attempted for all patients

Takes a broad view (physiological, behavioral, social) of patient problems

Shares responsibility for solving patient problems with the patient, including adequate patient education

Maintains a preventive attitude

PART III PRACTICE MANAGEMENT

A. *Practice Management Knowledge*

Demonstrates understanding of the training, roles, competencies and effect on practice of non-M.D. office personnel

B. *Practice Management Skills*

Demonstrates skill in management of clinical records (use of P.O.M.R., dictation filing and retrieval, transfer of information to consultants, hospitals, etc.)

[2] Constructed by Michael J. Gordon, Ph.D.

C. *Practice Management Attitudes*
Shares responsibilities appropriately among co-workers
Emphasizes follow-up and continuity of care
Appropriately allocates personal and professional time

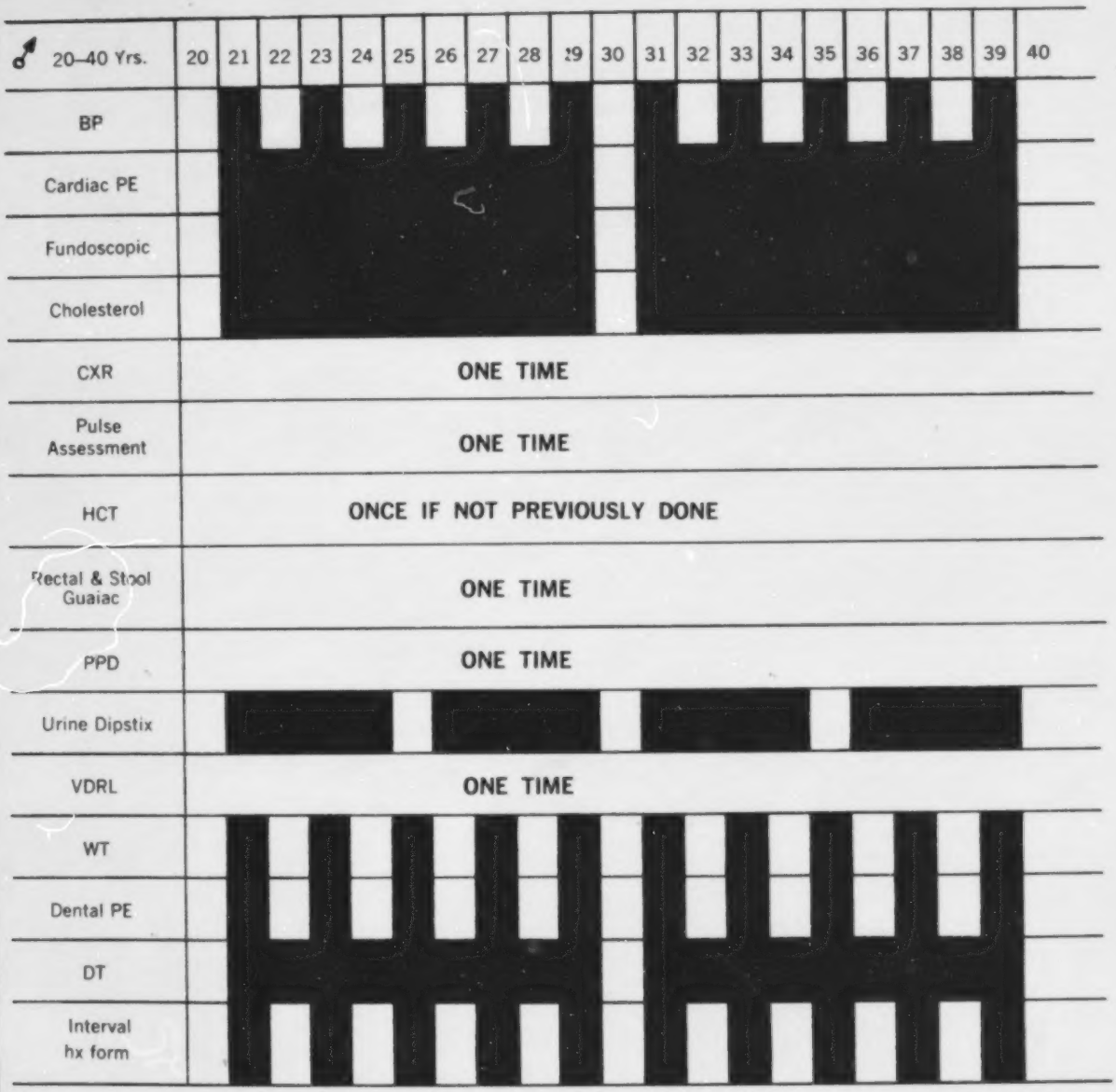
APPENDIX II

FAMILY MEDICAL CENTER
University of Washington

HEALTH MAINTENANCE RECORD

NAME _____

DATE _____



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FAMILY MEDICAL CENTER
University of Washington

HEALTH MAINTENANCE RECORD

NAME _____

DATE _____

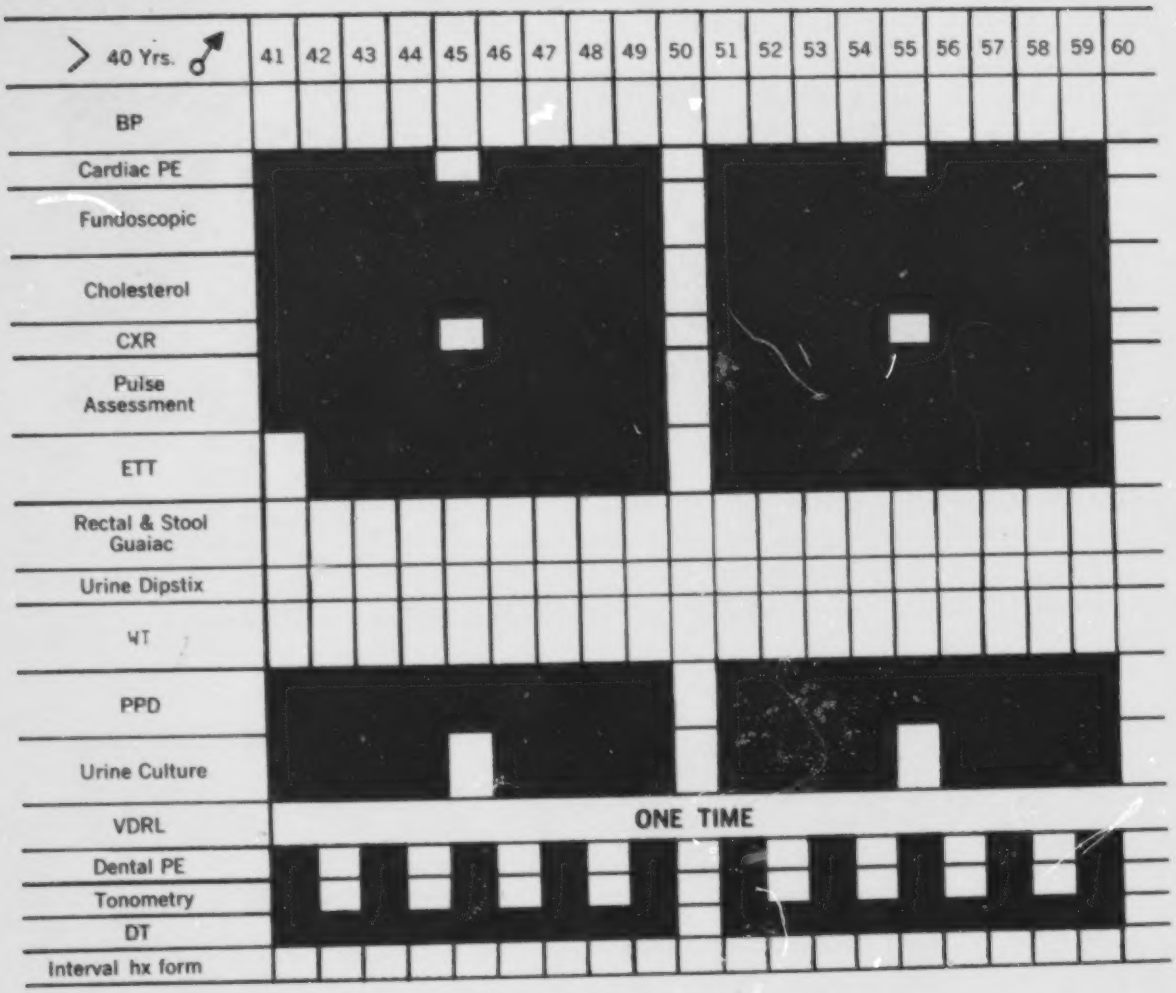
♀ 20–40 Yrs.	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
BP (Q. yr. if on BC pills)		■	■	■	■		■	■	■	■		■	■	■	■		■	■	■	■	
Cardiac PE		■	■	■	■		■	■	■	■		■	■	■	■		■	■	■	■	
Fundoscopic	ONE TIME																				
Cholesterol		■	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■	
CXR	ONE TIME																				
Pulse Assessment	ONE TIME																				
HCT		■	■	■	■		■	■	■	■		■	■	■	■		■	■	■	■	
Breast PE																					
Pap. SM.																					
Rectal & Stool Guaiac	ONE TIME																				
PPD	ONE TIME + PRENATAL																				
Urine Culture		■	■	■	■		■	■	■	■		■	■	■	■		■	■	■	■	
VDRL	ONE TIME																				
Gonorrhea Culture																					
Dental PE		■		■		■		■		■		■		■		■		■		■	
DT		■	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■	
Interval hx form		■		■		■		■		■		■		■		■		■		■	
WT		■		■		■		■		■		■		■		■		■		■	

FAMILY MEDICAL CENTER
University of Washington

HEALTH MAINTENANCE RECORD

NAME _____

DATE _____



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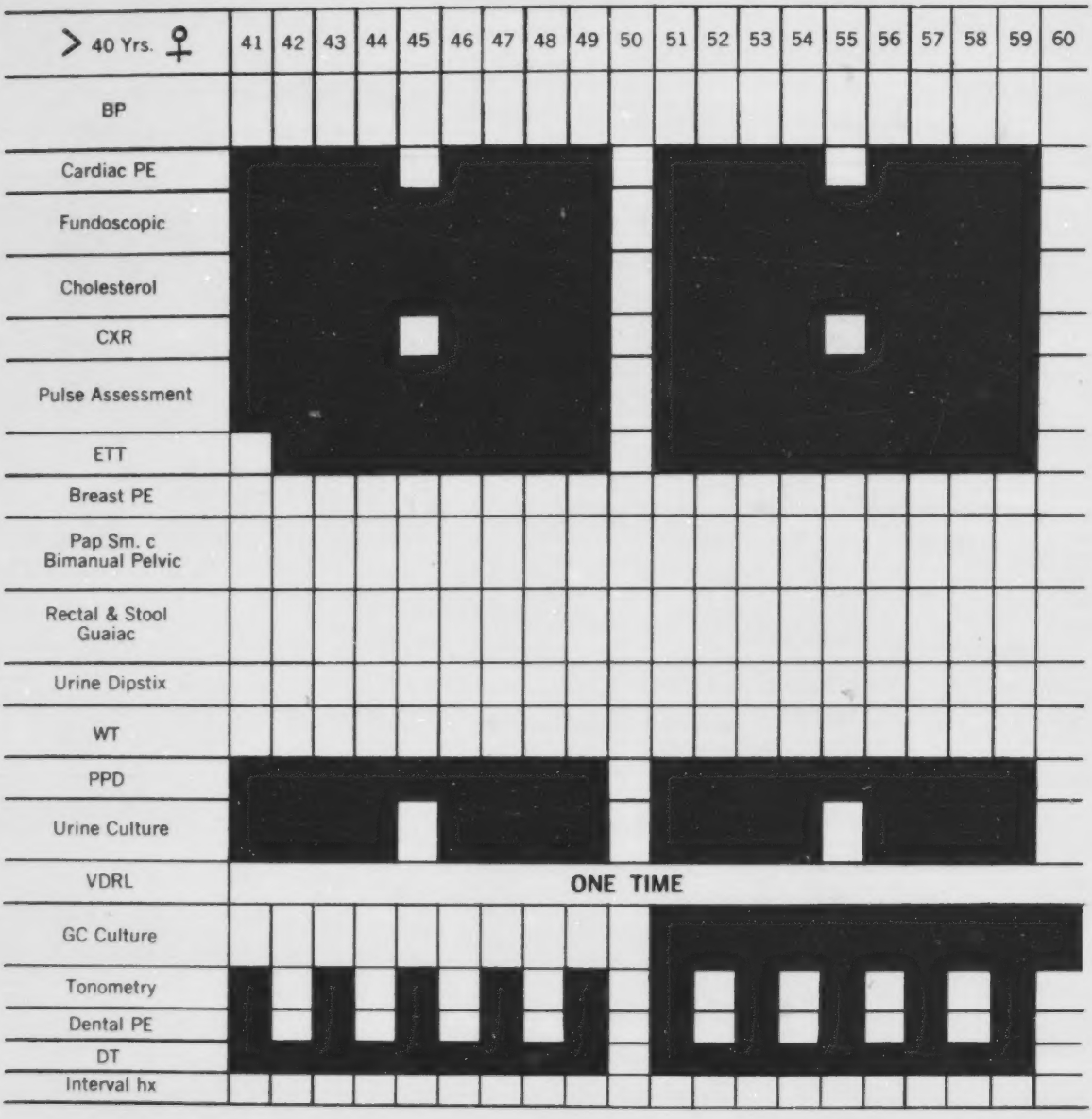
FAMILY MEDICAL CENTER
University of Washington

HEALTH MAINTENANCE RECORD

NAME _____

DATE _____



INVITED DISCUSSION

George Thomson

My first comment on Dr. Baker's paper—I wish I had said that! Let me quickly give an encapsulated summary as I see it because if I didn't see it right I may be agreeing to the wrong thing. My summary of his paper is that the objectives are in the field of knowledge, skills and attitudes. Then: (a) set the objectives, (b) give the experience, (c) identify those not met, (d) recycle to ensure objective obtained, and (e) reevaluate to ensure all have succeeded.

These goals are important and the system efficient. When a system is absent, real problems will arise. On my Canadian Licensure Examination, I faced just five questions on internal medicine—one was about gout. I must have missed all lectures on gout. I had never seen a patient with gout. I found nothing in my four years of class notes on gout. I had never learned anything about gout! That was at once a tragedy for me and a potential travesty on the public which I would serve. Baker's system would probably have prevented this tragedy and travesty.

However, I am left with three major concerns, for which I need HELP! These concerns are: (1) Learning of a system delineates concepts; (2) Attitudinal direction has NOT been met; (3) Cognitive facts may not be relevant (i.e., competency-based objectives are based on the assumption that the goal is agreed upon but an agreement may not be true or correct, e.g., remember, in 1950 to be certified as an obstetrician, a competency-based objective was to give 100 mgm of Diethylstilbestrol daily to a patient with a threatened abortion!)

LEARNING OF A SYSTEM DELINEATES CONCEPTS

This is not bad. Learning of a system, a protocol, an algorithm, a standard workup, a health maintenance procedure is good. But learning by such a procedure prescribes thought.

In Vol. II of the 1878 *British Medical Journal* it is repeated three times that the trouble with women becoming physicians is that they too closely follow the dictates of their professors. That is, it was felt that women were easily trained but could not be educated. (Forgive the Victorian error about women.)

Do you consider yourselves as being well trained, or do you believe you are well educated? As a trained person, you know that *b* follows *a*. As an educated person, you know why *b* follows *a*. To paraphrase Michael Shimkin (1971):

In war as in medicine, the well trained say "Can do." The well educated asks, "Should we do?" While we need both good training and good education, the competency-based objectives by Dr. Baker seem to emphasize the training. The major questions to be solved in the proposed program are the Sackett-like questions on evaluation of screening procedures (Sackett, 1972).

AN ATTITUDE DIRECTION HAS NOT BEEN MET

Through competency-based objectives, there is an excellent emphasis on knowledge, and why to accumulate it. After all, one learns best under the pressure of moderate anxiety—and if you don't learn this, you flunk! Skill is learned when you recognize that for right-handed people, the right hand is dominant. But, has there been an effective pedagogical tool developed which teaches attitudes?

What is attitude? From the *American Heritage Dictionary*, that Dirty Dictionary which defines all the four letter words you might have wondered about: "A state of mind or feeling with regard to some matter." Your attitude, then, is a state of mind which focuses your thoughts and affects your behavior.

(I'll apologize in advance. I got out of the service and started Medical School the next day in Canada. Many of my classmates were ex-pilots and artillery officers. H. L. Mencken said for four letter words look to Canadian troopers or Neapolitan boatsmen. My attitude toward four letter words changed in that environment and my behavior may reflect it. So, what the hell, let's talk about teaching of attitudes.)

To sell me a new attitude, it has to have: (a) A practical size I can carry in my head, not in a book, (b) I can easily see it does some good, (c) It is something so believable I can use it day or night, (d)

When I use it, it works, (e) It will help me help others.

In attitude teaching in Preventive Medicine, Baker has tended to follow Hilleboe's (1965) model of: (a) Prevention of Occurrence (b) Prevention of Progression (c) Patient Education.

I propose that Thomson's 3 × 3 problem-solving matrix is easier to use. My model is not new, only in its daily application to clinical problem solving. It is a combination of the Epidemiologic Model of Host, Agent, Environment, and the three levels of prevention: Primary, Secondary, Tertiary.

The advantages are: (1) it provides an easy formula to remember; (2) it requires consideration to fill in or reject filling in; (3) it provides a management tool to patient problem solving; (4) it can be applied to all clinical problems; and (5) its constant use develops a "preventive attitude." See example in Table 1.

COGNITIVE FACTS MAY NOT BE RELEVANT

We may well question some of our experiences. Is there a value in doing Pap smears? Kinlen and Doll (1973) just finished doing a rehash of the data in British Columbia. It again raises the question of what happens as the result of doing all these Pap smears. It has increased the number of hysterectomies done in British Columbia but has it affected deaths from carcinoma of the cervix?

Multiphasic screening raises another question. When you consider that there is a calculated five percent false positive error for each test and you do an SMA-16, you are getting almost to the point

TABLE 1. Prevention Matrix prepared for a problem of a 75-year-old woman with a fracture of the wrist.

	HOST	AGENT	ENVIRONMENT
Primary Preventive Measures	Maintain nutrition and vigor in all elderly.	No appropriate preventive measures found.	Promote senior citizen centers to encourage physical activity and better nutrition.
	Warn patient of brittle bones and prone to fall Wear wrist bands when walking on ice Hormone supplements	Wear non-skid shoes Decrease weight if overweight Teach to fall correctly	Promote better lighting, smoother walkways which patient might use.
Secondary Preventive Measures	X-ray all sprains Carefully select anesthesia	No appropriate preventive measures found.	Provide transportation for injured Insure trained personnel available for care
	Cast in cock-up position, mobilize early, keep fingers active.	Removable protective splints after cast removed, to be worn in daytime.	Check for irritation from cast, allergy to plaster, firmness of fit. Complete Medicare reports.
Tertiary Preventive Measures	Active and resistance exercises for fingers and elbow.	Patient protected from falling again.	Adequate facility and appointment for rehabilitation, transportation, payment of costs.
	Program of better health maintenance to prevent recurrence	No appropriate preventive measures found.	Educate family and/or nursing home personnel about increased risk for recurrence of accident

TABLE 2. Abbreviated Statement of Criteria for Programs of Multiphasic Screening (after Sackett's Committee Report to APHA, 1969)

I. Screening must lead to an improvement in end results among those in whom early diagnosis is achieved:
   a) Therapy is effective.
   b) Diagnostic confirmation is available.
   c) Compliance by asymptomatic patients can be achieved.
   d) Long term benefits to patients will outweigh detrimental effects to those labeled "diseased" or "at high risk."
   e) Effectiveness of each component is proved before being added to a multiphasic system.

II. The cost-benefit and cost-effectiveness characteristics of the program of screening and long-term therapy must be known:
   a) The frequency and severity of the disease warrants an action to detect it.
   b) The effectiveness of a screening test should relate to the population screened.
   c) The probable level of use of the information by the screened population should be known.
   d) The mix of screening tests should be appropriate for the target population.

where—think of it this way, wait until they get that new machine, SMA-21!

This reminds me of my father-in-law's experience. Among his many useful inventions he had one which excelled. He designed a low cost little tool which looked like a pair of pliers. With it you could easily repair the buttons on shoes. It was ready for market just as they quit making high button shoes.

These experiences suggest a need to develop a set of criteria to assess what we are doing. And, gentlemen, this is why I am here. My hidden agenda is to get you to help me develop a set of criteria for what we are doing. I had hoped this conference could at least deduce these. For the Section of Epidemiology of the American Public Health Association (APHA), David Sackett (1969) prepared some criteria for the field of screening for early diagnosis. (See abbreviated statement in Table 2.) But, is early diagnosis the only level of prevention in Primary Care? Is early diagnosis the only thing we do? What about developing criteria for assessment of all levels of prevention?

A. Primary Prevention:

1. Health Promotion and Education

Keep out of drafts, drink your prune juice, wear galoshes, brush your teeth twice a day and see your dentist twice a year. This type of education was described by one of my residents as "giving the benefit of your best guess."

2. Specific Protection

Get your Tetanus and Diphtheria shots so you won't die. But neither has an effect on creating a herd immunity. Polio vaccine probably does. But where does herd immunity fit in our criteria for specific protection?

B. Secondary Prevention:

1. Early diagnosis is a good thing. In some instances it only helps you worry longer about your disease, but at least you know what you are suffering from. That is one possible conclusion you can draw from the data that life expectancy after age ten has not been prolonged in the past 20 years.

2. Management of patients to lessen the severity of their complication is fine. But, if long-term steroids and immunosuppressants are not decreased, we'll kill ourselves with superinfections or old fashioned T.B.

C. Tertiary Prevention:

1. Rehabilitation—is it always good? Let's get some criteria which will help us evaluate post-operative remedial exercise for a metastatic hip fracture in a 75-year-old woman with emphysema. Let us look at this from a cost/benefit standpoint as well as a caring standpoint.

2. Terminal Care—I don't know if any of you have read my descriptions of primary, secondary and tertiary prevention. I always add considerate terminal care to the tertiary level. Look at criteria in reference to this because it may be that here is where we can get the greatest payoff of anything in the field of prevention. When we prevent problems for a five-year-old child in adjusting to having lost his grandmother, the effects of how that is done may last 70 years for that child.

At this point I am going to ask a question. How many of these "good things" will emanate from professors of preventive medicine and how many of them are actually going to be coming from the primary physician in his day-to-day care of patients? It seems that our responsibility as teachers of preventive medicine is to teach preventive medicine in a primary care clinical setting and we might find it more effective.

I will conclude with the following: (1) Teach knowledge and skills per Baker's paper. I think it is excellent; (2) Consider a way to get some deep, in-

grained attitudes of prevention into all students—whether they be primary care types or not; (3) Let the experts gathered here develop a set of criteria on how to evaluate what is relevant. The primary physician wants this help—and he isn't getting it.

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DISCUSSION

McWHINNEY: That was a very thought-provoking presentation. However, when talking to new residents coming into our program, I talk about these three or four areas in a different order. I put values and attitudes first for several reasons. First, because they are the fundamental thing that we're trying to change. If we change the values and attitudes, then the teaching of appropriate skills and knowledge will follow. Secondly, I think they are more durable because certainly the knowledge will turn over every few years. Thirdly, because they are so much more difficult to teach. In fact, one can't teach values and attitudes in any formal sense. This makes the setting and the role models absolutely vital. In other words, if the values and attitudes that we're trying to convey don't pervade the whole setting of education and are not practiced by the teachers then we might as well not talk about them.

Further reason why the setting is so important is that it's not until the student or resident confronts the problems that he's able to learn how to deal with them. It's so very different learning something in theory and then coming up against a problem and looking for solutions to it. This is one of the problems we've encountered in teaching epidemiology to residents.

In relation to skills, some are uniquely suited to family practice. Among these are the tactical and strategic preventive medicine skills to be used by a family practitioner. [Note: these are discussed in detail in Dr. McWhinney's paper in chapter 4 of this book.]

My last comment would be one of sympathy or empathy with you in writing Magerian objectives because they become less and less possible and meaningful as you go up the scale. When you're down in the practical scales it's easy. The more you get on to attitudes, values, and philosophical levels, the more difficult and impossible it becomes. I was comforted to read in Silberman's *Crisis in the Classroom* a critique of the Magerian approach to educational objectives. While it's valuable as a discipline, I agree with Dr. Thomson's point that it may be very constricting.

SCUTCHFIELD: Despite the limitations of the method, it's important for us to develop competency-based behavioral objectives in order to get any kind of handle on the quality of our educational product. It is difficult to define the attitudinal objectives, but all of us are aware of the experience, I'm sure, of having seen the family physician who has effectively demonstrated that he has that attitude which you regard as a preventive attitude. And if you can identify what it is that he did that led you to know that he had that attitude then you can come back and put that into your behavioral objectives. This argues for task analysis of the model family physician with that preventive attitude. I would further support efforts to establish Magerian behavioral objectives because the exercise producing those educational objectives in and of itself allows the faculty to focus their philosophic efforts towards the production of a common educational product—it makes the faculty focus on what it is that they want to convey to the student.

FARLEY: I would like to further reinforce the point that among competencies to be taught the practitioner is the attitude and ability to be critical of what he is doing, to ask questions saying, "This is the way I do it now, but is it right?" Maybe ten years from now we'll change our whole system of looking at cervical smears or examining breasts or whatever. The practitioner needs an attitude to adapt and contribute to such change. This may be reinforced by encouraging practitioners to play a role in developing data on which decisions regarding such change are based.

S. SMITH: Dr. Farley points out that much of what we're being taught might be irrelevant in 10, 15, 20 years, and that the practitioners should be prepared to change ideas about what is right and what is wrong. One way to get that done is through the feedback from one's patient population. Accordingly, you can't consider a family medicine resident to be competently trained unless the training has included first-hand experience with consumer feedback and consumer responsibility for the definition of the needs and for the planning and evaluation of the services rendered to meet those needs. This important consideration has been missing from the discussion so far.

CHRISTIAN: I have some reservations on this point. In my residency training we have worked with

consumer advisory groups and frequently found that they don't have a realistic approach to what is cost effective. They want you to manage many more patients than you can. They want you to create more facilities than you can. So my point would be that if you are going to train residents to work with consumers, that you counsel them to assess how well informed the consumers are regarding how much medicine costs, what services are available, effective, etc. Part of the resident's role, in fact, might be to assist consumers in becoming better informed.

PAYTON: I would like to pursue this further and suggest that in delineating educational objectives we ought to begin with outcomes of the health care system—getting people, physicians as well as consumers, to think about what it is that we would like to have accomplished through this massive multibillion dollar effort that we're putting forth. This focus on the primacy of outcomes on the part of practitioners ought to create an attitude conducive to achieving the competencies Dr. Baker has listed.

Also, starting with outcomes, you will speed the learning process in medical school. I note that Dr. Baker has listed under knowledge, for example, "Prevalence, approximate, including populations at risk." Now, I can remember my pathology textbook always having a little section about males greater than females occurring in the third decade, etc., etc., but I couldn't understand why I needed to know that at that point. Okay, if we could start with the point that we have outcomes to achieve and one of those outcomes is the prevention of illness, maybe we can show students, both at the undergraduate and the postgraduate training levels, why they need to retain that piece of information. Motivation! Get them to recognize that this is for the benefit of their patients.

On the matter of creating the community/preventive attitude, I would like to take us back one step from the discussion of training to a consideration of the attitudes we are starting with in students entering the medical fields. To what extent do these entering attitudes determine the ultimate attitude of the practitioner? I understand that an unusually large proportion (approximately 50 percent) at the University of Washington Medical School elect to pursue the "Family Physician Pathway," a curriculum which, in title at least, implies a philosophy very different from most of the training I received in medical school. I am interested in what accounts for this. Is there something about the students that are selected? Is there something additionally different about the social environment there that sustains and supports this preference?

BAKER: There are three major reasons why many students graduating from the University of Washington are heading for primary care, particularly in rural areas. The first is the admissions procedure which is in part the result of a State school responding to a clear social need, at least in the Pacific Northwest. The admission committee looks hard for students who are going to do that. If you ask me how they look for them, I don't know the answer. (It is a standard saw that is classic in senior skits that you can't get into the University of Washington's Medical School unless you say, "I'm going to be a rural family doc in the Pacific Northwest.") Secondly, the modeling system has changed. Family Medicine, through its involvement in core curriculum, puts on three half-days of the orientation week during which we introduce the concepts of interpersonal communication. We do it in small groups with physicians, mainly family docs that are on the faculty, and these are the first doctors the students see. The subspecialist is no longer the prime or sole clinician model. Lastly, there is a very successful curriculum advisory system for students who are preparing for primary care. This includes ongoing contact with both academic and community-based family physicians.

The curriculum for the pathway fits Whitehead's conceptual frame, beginning with a romance phase the first year—communicating with patients; proceeding to a precision phase during the second year —critically discussing preventive medicine and other primary care skills and concepts in seminars and learning the application of specific skills in consort with a practicing family physician; and concluding with a synthesis phase consisting of a six-week seminar clerkship in a family practice in a rural community.

STOKES: I question the implication that basic values and attitudes can be taught in medical education. Basic attitudes and values derive from the family and from earlier training and cultural experiences. All we can do in medical school is reinforce those attitudes which we consider good.

SCUTCHFIELD: Wrong! Members of my medical school class received a Multiphasic Personality Interview every year for four years: We got paranoid, lost our humanitarianism, got authoritarian, lost our social conscience, and became very disease focused. They certainly changed our attitude!

3

PREVENTIVE MEDICINE EDUCATION IN FAMILY PRACTICE RESIDENCY

Donald F. Treat

INTRODUCTION

With the publication of the Millis Report (Report of the Citizens' Commission on Graduate Medical Education, 1966), the attention of the medical community was abruptly shifted from the comforting scene of leaping advances in basic biomedical research to the disquieting spectacle of serious deficiencies in the health care delivery system. A major emphasis in Dr. Millis' report was that the system would function much more efficiently and economically if each patient had access to a primary physician who would be responsible for advising, coordinating, and supervising the patient's medical care. Another national commission (National Commission on Community Health Services, 1966) pointed out that the direction in medical education would need some alteration if personal physicians were to appear in any number and be equipped to provide high quality of care. The Willard Report (Meeting the Challenge of Family Practice, 1966) enunciated the necessity of special training for physicians who would both deliver primary type of care to patients at easily accessible points of entry into the medical care system, and be responsible for providing logical continuity and supervision.

During the same years that these committee reports received national prominence, the American Academy of General Practice (later changed to American Academy of Family Practice) vigorously advocated the concept of the family physician as one which would meet the need for comprehensive, continuing care. The family physician would be broadly knowledgeable in the medical disciplines most useful to physicians of first contact—internal medicine, pediatrics, preventive medicine, obstetrics, medical gynecology, office type surgery, and behavioral science. Since this type of physician would need an amalgam of skills not customarily found in the products of any existing residencies, new training programs would have to be launched. In 1969, when the new field of family medicine received specialty status by virtue of the establishment of the American Board of Family Practice, there were only a handful of residencies to train the new practitioners. Today, there are over 287 approved residencies, over 85 departments or divisions of family medicine in American medical schools, and several dozen in other countries. Concurrently, there was a great surge of activity among legislative and philanthropic bodies to provide essential funds for the support of these educational efforts; and a few of the traditional specialties, particularly pediatrics and internal medicine, began to rethink and reevaluate their own approach to medical education at both graduate and undergraduate levels in light of expressed public opinion and changing priorities.

Out of this ferment the outline of a new breed of physician is gradually appearing—one dedicated to bringing high quality of care to the common health problems encountered in daily living. One can then define, for purposes of this paper, the primary care physician as one who: (1) serves as physician of first contact with the patient and provides a means of entry into the health care system; (2) evaluates the patient's total health needs, provides personal medical care within one or more fields of medicine, and refers when indicated to appropriate sources of care while preserving the continuity of his care; (3) assumes responsibility for the patient's comprehensive and continuous health care and acts, where appropriate, as leader or coordinator of a team of health care providers; (4) accepts responsibility for the patient's total health care within the context of his environment, including the community and the family or comparable social unit (DHEW, 1973). While the family physician, as primary care physician for the family, regards the health of the whole family—all ages and both sexes—as under his aegis, at least on the primary care level, the other major deliverers of primary care—the internist, the pediatrician, and the obstetrician—customarily place certain limitations with regard to age or sex of their patients.

From such a definition, it is evident that the insights and skills of preventive medicine would be of

substantial importance to the functioning of the primary care physician. Preventive medicine, with its melding of social, economic, epidemiological and statistical sciences, is a discipline which can enable the new physician to affect the health of his patients by identifying incipient disease, flagging high risk situations, mobilizing community resources, and by working with other professionals to reduce hazards and remove barriers to good health. The responsibility for the harmonious integration of these somewhat diverse elements with the curative and rehabilitative aspects of medical care requires a "global view" on the physician's part. It also requires a willingness to work closely with other physicians, for no single physician can possibly possess all the knowledge and skills needed to solve the many complex health problems in his practice.

What, then, are the competencies required of the primary care physician if he is to accomplish his task? Before addressing this question I must acknowledge my own bias and identify the limits of my comments. First, the scope of this paper does not permit a detailed consideration of all of the competencies required, but rather calls for emphasis on those competencies with preventive medicine content. And, secondly, my only formal teaching experience has been with a training program for family physicians and, therefore, my positions and statements must be seen in that light.

PREVENTIVE MEDICINE COMPETENCIES

I will discuss the required preventive medicine competencies under four headings: primary prevention; secondary prevention, to include early disease detection; patient education; and community medicine.

Primary Prevention

The protection and preservation of his patient's health may be the most important tasks of the primary physician. Yet, in terms of time and effort devoted to their accomplishment, they often receive scant attention during the average patient/physician contact (Peterson et al., 1956; Baker and Parrish, 1965). Why is this so? A partial answer undoubtedly lies in the perceived expectations of the patient, who usually presents himself to be restored to health, or to have his discomfort reduced if cure is not possible. If the physician sees his responsibility as limited to responding to the immediate, often self-limited crisis, there is little likelihood that the patient's unarticulated needs will be met. Since crisis care is the antithesis of comprehensive and continuing care (although the management of crisis falls within the purview of comprehensive care), the physician must have an attitude which conveys the importance of prevention to the patient (Blanchard, 1970).

It is universally appreciated, I believe, that a few patients, mostly women and children, present themselves fairly regularly for "check-ups" which are often directed more toward the detection of early disease than to identification of factors which constitute risks to future health. With frustrating frequency, no active disease process is detected. Moreover, identified health hazards, such as obesity, or abuse of alcohol or tobacco, are often not sufficiently disturbing to the patient to motivate a change in his habits or lifestyle.

In addition to the difficult and delicate task of arousing the patient's concern about asymptomatic health problems without producing hypochondriasis, the physician is aware that the effectiveness of many popular approaches and techniques to prevent disease or disability are unproven. The question, "Does preventive medicine really work?" deserves study and careful testing under a variety of controlled situations. Results would be of great value to the physician when planning effective allocation of his time and resources.

For the prototype of effective primary prevention —active immunization against infectious disease— there is little question of its effectiveness. The primary physician must be conversant with the latest recommendations in this area by the recognized national and public health advisory bodies (World Health Organization, 1960; 1961; 1971). He also needs a system of practice which is designed to assure periodic updating of each patient's immunization status. A description of one system will be found later in this paper. However, no system can substitute for the physician's positive attitude toward prevention, which may well be something he brings with him when entering the primary care field rather than something he acquires through training. A small study of incoming Family Medicine residents in The University of Rochester Family Medicine Program showed that they had very positive attitudes toward preventive aspects of medical care. (See Appendix I, this chapter.) Furthermore, review of the office medical records from several graduates of the same program indicates that primary prevention

is still regarded as an important part of office practice two or three years after completion of formal education.

Competency in primary prevention, then, encompasses the requisite knowledge, skills, and attitudes which will enable the primary physician to prevent disease where possible, either through immunization against infectious disease, or through patient education for patients exposed to identified health hazards.

Secondary Prevention

When the doctor discovers the presence of disease in his patient, his preventive medicine competency must extend to limiting the impact of the disease on the patient, his family, and his community. Perhaps the single most important aspect of secondary prevention is the timely employment of rehabilitation measures. Like immunization in primary prevention, there is little doubt that early steps to preserve and restore the patient's abilities to function often dramatically decrease the potential social and economic cost of the illness. Again, the critical element is the doctor's attitude toward the patient and his illness. To cite a common example, the patient recovering from a recent myocardial infarction may function a great deal better when he returns to work if he knows his family and employer are aware of the "game plan" for his resumption of normal activities. The key person to minimize reentry shocks is the personal physician. It is incumbent upon the teachers of primary care to stress that curative skills also are not enough to do the comprehensive job required of the primary physician. While it is not necessary that the physician carry out the rehabilitative program personally, he is responsible for seeing that it is done, and this implies a basic knowledge of rehabilitation as one of his competencies.

Another aspect of secondary prevention involves the notion that, in many instances, detection of disease in its asymptomatic state will be of definite benefit to the patient. This appealing concept has been seriously challenged by several (Sackett, 1972; Siegel, 1966; Boucot and Weiss, 1973; Ahluwalis and Doll, 1968) who question the benefits derived from wholesale screening programs and periodic health examinations. A rational approach to early disease detection is clearly called for, and should be part of the primary physician's competencies. To justify the cost of screening, he should be prepared to answer such questions as: Is the disease to be screened occurring with sufficient frequency within the population at risk? Is it associated with significant morbidity? Will early detection benefit the patient? Do the screening tests available possess the required degree of sensitivity, specificity, and reproducability? And does the patient understand what the testing procedures may mean to him in terms of cost and possible benefits?

To make rational decisions in this area, the physician needs much more and better data than is currently available, and he needs a good grounding in the epidemiological principles involved—two areas where departments of preventive medicine could make major contributions.

Patient Education

One of the most popular beliefs held by laymen and physicians alike is the one which asserts that health education can be an effective method of improving the health of the individual or the community. The adherents seldom define what they mean by patient education. For our purposes, patient education means a deliberate effort on the part of the physician to modify a patient's behavior by informing him about health hazards and by recommending change. While this is a daily exercise for nearly everyone practicing clinical medicine when caring for individual patients with identified problems, the concept of education for cohorts of patients, or the practice as a whole, is seldom practiced. The primary physician must either learn to use techniques for educating groups of patients with identified risks, or employ someone else to do the job, if he hopes to change the health habits of considerable numbers of his patients. Education of inappropriate utilizers of medical care has important implications for practice management. Education of the whole practice may influence important health decisions for the community—for example, fluoridation of water, identification of unmet health needs, etc.

Community Medicine

One of the primary physician's tasks is to be able to mobilize and orchestrate the health resources in his patients' community. To use a sport analogy, the primary physician, like a good quarterback, doesn't do everything on every play, but he does call the signals. More and more agencies are being formed to meet the health needs of certain types of patients. It is important for the physician to become familiar

with the kinds of assistance his patients can expect from the health resources in his community so that he can make appropriate referrals. This competency can be taught in graduate training programs which interface with the community at large as well as other medical disciplines. He must be equipped through training and experience to guide patients with multifaceted problems which often involve whole families, cross cultural and professional lines, and to help the patient surmount numerous obstacles to obtain the assistance needed.

Besides mobilizing health resources, many primary care physicians, by the very nature of their work, will participate in conceiving, organizing and operating community based health agencies. Self-help organizations, service clubs and similar health groups often need the expertise of physicians. The area and degree to which the primary care physician becomes involved in community health problems will be determined by personal interest as well as expertise. Some will concentrate their energies in the area of direct care, and merely use well the resources available. More plan to help their communities identify their health problems and plan for rational change. For this latter group, training programs should be flexible enough to allow parallel development of skill in both clinical and community medicine.

In summary, the preventive medicine competencies should enable the primary physician to identify high risk patients individually and by groups; to deliver comprehensive primary preventive care through immunization, developmental guidance and availability as a knowledgeable source of health information; to limit the impact of disease through use of selected screening procedures, early diagnosis, prompt care and early rehabilitation; and to utilize available community resources.

Having stated the preventive medicine objectives for primary physicians, it remains for us to examine the resources needed to attain the objectives and to describe how those resources can be combined and integrated into an effective teaching/learning experience.

TEACHING RESOURCES

It will be convenient to divide into two parts our consideration of the resources needed for the teaching of preventive medicine competencies to physicians planning to deliver primary care. The first part will be devoted to a description of the structure or framework for a teaching program; the second, to the process or teaching method.

The Structure

The structure of any teaching program provides the essential framework of boundaries and support for the teaching process. The structure can be described under the headings of setting, record system, consumer group, and faculty, including relationships with other departments. In the following discussion, I will use a Family Medicine Program as a prototype because I am more familiar with programs in that field than other primary care disciplines.

Setting: Consideration of the environment in which primary care is to be taught is of fundamental importance, for it establishes the proximity of teaching resources, the general direction and emphasis within the program, and its attractiveness to residents. What are the necessary elements which will facilitate the learning of preventive medicine in a family medicine residency? Perhaps the most essential element is association of the residency with a supportive group of individuals and institutions which have goals comparable to those of the residency program. The environment should be one in which teaching is at least as important as service or research. There must be a community of teachers and students to generate enthusiastic pursuit of new knowledge and better applications of old knowledge. Without such a community, a residency will be limited to vocational training, and although it may produce adequately trained physicians, it will have difficulty attracting the most innovative and challenging teachers and students.

The frequently raised question is where should a primary care residency be located, in a university or community hospital? Either setting is compatible with excellent performance providing the essential ambience and resources are present. Ideally, the setting should combine both the realistic, pragmatic teaching ground found in good community hospitals, with the community of learners and educational resources associated with university settings.

For purposes of illustration, a description of the setting for the University of Rochester Family Medicine Program may be useful. The program is a joint effort by the University's School of Medicine and Dentistry and Highland Hospital, a major teaching affiliate. A decision to locate the program at High-

land, a community-based hospital about two miles from the University Medical Center, was based on the university's recognition that the family physician would be caring for patients in the community and using community, rather than university-type, medical care facilities upon graduation. There were also practical considerations of space and financial underwriting, which Highland Hospital was able to provide. This important decision was made in 1966 by an Advisory Committee composed of chairmen of selected major clinical departments at the University and their counterparts at Highland Hospital, together with administrative representatives. From the beginning, the University recognized its fundamental responsibility to make its analytical, planning, and educational skills available to the new program. At the same time, the committee did not dictate either the form or the content of the new program. It tried to avoid the hazard of putting new wine in old wine skins.

Rather than develop a new, free-standing and separate department of family medicine, the University decided to create a division of family medicine which would be the joint responsibility of four university departments—medicine, pediatrics, preventive medicine, and psychiatry. By this arrangement, the disadvantages of slightly diminished autonomy and prestige of division status was offset by direct commitment of each of the parent departments to the success of the program. It was understood from the beginning that many of the residents' clinical skills would be acquired through inpatient rotations and, therefore, the traditional clinical departments would have major teaching responsibilities. Family medicine was also viewed by the four departments as a field which contained many areas of mutual interest and the possibility of new forms of interdepartmental cooperation. At the undergraduate level, for example, joint teaching exercises involving medicine, preventive medicine, psychiatry, and family medicine have allowed students to examine the impact of chronic disease upon the patient, his family, and the community. Although the Rochester program is primarily designed as a residency training program, undergraduate students from Rochester and elsewhere have successfully participated in research and patient care aspects of the program.

One of the unique features of residency training in family medicine is the model practice unit. The Accreditation Commission Guidelines for Family Practice Residencies specifically states that the model practice unit should simulate, as closely as possible, the conditions of private practice. The clear intent is to avoid the crisis-centered operations of the hospital emergency room, or the disease-oriented approach to the patient so common in hospital based specialty clinics. The selection of a suitable site for the model practice unit is of crucial importance. Does the site permit the unit to be part of the essential "environment of learning" described earlier? Is the site easily accessible to patients, students, and faculty? If the program depends heavily on inpatient services for teaching, is the site convenient for the residents? Is the site of the unit one which is acceptable to the patients it hopes to serve, or is it burdened with old baggage—bus station waiting areas or long subterranean passages through the bowels of a hospital? And, finally, has space been provided for teaching and research as well as patient care? Several of these questions will be considered in some detail because of their obvious implications for community and preventive medicine departments.

Careful consideration and selection of the patient population is crucial. If one intends to attract some middle and upper class patients, the model practice unit should be located with their expectations and concerns in mind. By the same token, if one recognizes the importance of including lower socioeconomic groups in the training program, the location should be near public transportation. An early decision at Rochester was to develop a teaching practice population with demographic characteristics mirroring, as far as possible, Rochester as a whole. In this way, we planned to provide residents with the experience of caring for families from the various cultural, ethnic, social, and economic backgrounds represented in our city. We wished to avoid the overwhelming experience of assuming comprehensive care for large numbers of multi-problem, disadvantaged families. Success in achieving this goal is reflected in Table 1. Hammond and Kern (1959) pointed out several years ago that it is difficult to maintain enthusiasm for preventive medicine among students who are caring only for patients whose needs and demands are sharply focused on the present. While our location, adjacent to a community hospital in a multi-class neighborhood, did not provide easy access to the inner city population, many came anyway, thereby demonstrating strong motivation to obtain "middle class" medical care. Had access to the inner city been easy, we could have been over-

TABLE 1. Socio-Economic Class Distributions of Monroe County and Family Practice Populations

	Monroe County Population[1] *by Socio-Economic Class*		*Family Medicine Practice Population by Socio-Economic Class (8/73)*	
S.E.S.	*Population*	*%*	*Population*	*%*
I	104,492	15.1	853	11.0
II	224,837	32.5	2,217	28.5
III	256,803	37.1	3,173	40.8
IV	70,675	10.2	1,141	14.7
V	34,905	5.1	371	4.8
	691,512	100.0	7,775	99.8

[1] Based on 1970 Census, U.S. Department of Commerce, Social and Economic Statistics Administration, and Five-part Composite S.E.S. Index by Wagenfeld & Willie, "Calculation of Socio-Economic Areas of Rochester and Monroe County, New York" Rochester, 1966.

(S.E.S. I is the highest and S.E.S. V is the lowest.)

whelmed by the demands for crisis care. Certainly more time, money, and personnel would have been diverted to out-reach, community type services.

Preventive medicine can bring its epidemiological and statistical skills into the family practice unit to demonstrate the usefulness of its discipline for the practicing physician. The model practice unit is a research model as well as an example of one method of health care delivery. One of the competencies expected in the primary care physician is an ability to collect and analyze data about his practice. He must actually be able to use the data to answer questions important to him if he is to carry research tools with him into practice. In the press of residency training, with the many demands on the resident's time, the accessibility of data, whether in a morbidity index or a patient's record, often determines its usefulness. And the same is true in practice.

Many of these considerations determined the location and form of the model practice unit. The University of Rochester Unit occupies one floor in a professional building, adjacent to Highland Hospital, a 300-bed community hospital. Separate parking areas, entrance and elevators serve the building. Other private physicians occupy offices on adjacent floors. The model practice unit is connected by a corridor to the hospital. Since most of the residents' inpatient service time is at Highland, travel time is less than if the model practice unit were located elsewhere. Having one's office within a few steps of hospitalized patients makes the care of both bed and ambulatory patients much easier. The adjacent hospital also provides convenient access to many consultative services and educational resources. The proximity of the hospital and the intimate relationship between program and hospital staff provides the residents with opportunity to work with other professionals in solving problems of mutual concern.

The physical structure of the model practice unit should facilitate the team approach to patient care. Some of the basic requirements are centrally located medical records, easily accessible to all teams; sufficient number of conference rooms which can double as teaching and demonstration areas; office space for on-site associates like physician assistants or social workers; a laboratory for routine office tests and easily accessible diagnostic radiologic facilities. Even the patient waiting area deserves careful planning. Not only should it convey a warm, relaxed and comfortable impression, but it should also have a play area for children and an educational area for adults.

So far, we have considered the environment and location in which primary care may be taught effectively. The next part of the structure is the group of people assembled to carry out the tasks of the program. Just as the tasks of education, patient care and research are interrelated and often overlap, so do the roles of individual staff members, particularly faculty. The point at which the various members of the staff have the greatest degree of interaction, and where most of the teaching within the model practice unit occurs, is in meeting patient needs. The needs may require only a straightforward and relatively uncomplicated response on the part of one member of the health team, such as would be sufficient for an acute, self-limited illness. Or the patient and his family may need special assistance from several staff members—patients with combinations of social, psychologic, and medical problems are obvious examples.

The staff includes faculty, residents, nurse practitioners, nurses, health assistants, secretaries, administrative assistants, and laboratory personnel. Although residents are customarily thought of as being taught by the staff, it is more rewarding to regard them as colleagues in a joint enterprise, for then they can function more comfortably and productively within a team setting. Virtually without exception, the residents intend to practice their specialty in partnerships or groups rather than as solo practitioners. Moreover, they intend to work with other

health care providers such as nurse practitioners, physician assistants, public health nurses, social workers, psychologists, pharmacists—in fact, everyone who can contribute to improving the patient's lot.

The concept that the patient would benefit if more of his day-to-day health care needs were provided by non-M.D.'s is realtively new (Allied Health Personnel, 1969). We now see many programs developing to train a variety of non-M.D. health care providers (Smith, 1970; Bates, 1972). Most of these programs, as well as primary care training programs for physicians, see their graduates working in a complimentary way. From a teaching point of view, it will be important and perhaps essential that each discipline learn to work closely with the other to bring coherence to the medical care scene. For preventive medicine, these developments present challenging opportunities to help clarify roles by measuring the impact of new health workers on the community, by evaluating and comparing different approaches to primary health care delivery.

Strange as it may sound at first, we have organized our teams around the secretary, as she represents a relatively fixed, accessible and familiar person for the patient. The secretary schedules the appointments and does the other customary tasks expected of a doctor's secretary. In the model practice unit, however, she has several part-time doctors (residents) and a nurse practitioner on her team in addition to a faculty member, who functions as the team's leader. When a patient cannot be given an appropriate appointment with "his doctor," the secretary schedules a visit with another member of her team. This process both simulates coverage arrangements common in private practice and limits the sharing of care to a small group. The team meets as a group every week to thrash out procedural problems, plan conferences, and clarify roles and responsibilities.

Record System: If one is to compare the results of health teams, whether they are within the same unit or in different units, one must have sets of comparable data. If one plans to make rational choices involving the operation of a practice, one needs informative data about the operation on which to base the decisions. If a physician expects to "learn from his practice," he must choose a method of recording and retrieving important data about cohorts of patients so that he can review his management of groups of patients with similar problems, or ages, or geographic locations, or socio-economic status. And he must be able to do these sorts of things if he hopes to do more than just respond to the complaints of those who come to him.

Registry: Essential for the comparison of populations is standardization for age and sex, since the prevalence and patterns of disease are strongly dependent upon those variables. Knowledge about the age and sex distribution within a practice also permits certain operational decisions to be made on a rational basis. For example, analysis of the age/sex data might support an impression that someone with appropriate skills for a specific age group could be adequately employed. Such an impression would be enhanced further if year-to-year comparison, demonstrated consistent trends within the practice.

The establishment of an Age/Sex Registry is a simple matter at the beginning of a practice, and its maintenance requires a minimum of time, skill and space. In an established practice, construction of a registry is a more formidable task.

The registry can consist of plain 2¾ by 3½ inch cards on which the individual patient's name, birth date, and census tract or other identifying information is entered. Color coded file cards specially designed for a registry have been developed by The Royal College of General Practitioners, and contain conveniently arranged space for recording additional data if desired, and can be "notched" for needle sorting (Eimerl, 1969). By convention, red cards are used for females, blue cards for males. Once entries are made, the cards are filed by year of birth and sex. Thus, all males (blue cards) born in 1972 will be grouped together adjacent to the group of females (red cards) born in the same year. Within each color grouping, the cards are arranged alphabetically. Thus, at a glance, with simple counting, one can obtain a profile of the practice.

In order to make the registry reflect the current patient care population as clearly as possible, periodic updating of the registry is essential. To facilitate removal of patients' cards who are probably no longer using the practice, a colored tab is placed on a conspicuous edge of the folder holding the patient's medical record the first time the patient contacts the practice in the current calendar year. A different colored tab is used for each subsequent year. If the medical records are filed on open shelves, it is an easy task to identify folders of patients who have not contacted the practice, and to then remove their cards from the registry. The usefulness of the data derived from this method of identifying patients within a practice needs to be tested, and constitutes

one of the several areas where the expertise of epidemiologists and biostatisticians can be immensely helpful.

Another profile of a practice population can be obtained by grouping medical record folders on open shelves according to geographic areas served by the practice. If the areas can be characterized in social and economic terms, additional profiles may be obtained. For example, certain social and economic characteristics are known about the census tracts in our area, and the relatively dense population makes use of census tract filing practical. In less dense areas, other geographical divisions such as school districts, postal zones, or townships, can be used. The selection of a particular method of filing should depend upon what use one intends to make of the filing system and the costs involved. The possibilities for useful epidemiological studies are numerous. One could easily study the patterns of disease as they appear within the practice, the difference in utilization rates between different geographical areas, the prevalence of disease among various social and economic groups, the association of suspected environmental hazards with the appearance of disease, and so forth. The close correlation of census tract divisions with the age of the housing in our area enabled us to easily identify all households within our practice at high risk for lead poisoning. Once identified, the parents of children at high risk were contacted by letter and urged to come in for testing. Of the 75 thus identified, 40 responded to our appeal, and the records of the others were flagged.

At first thought, geographic filing may seem unduly cumbersome. It does require a master locator file where all patients are cross referenced with the geographic areas. However, our experience has shown that reference to the master file is needed only for those unfamiliar with the patient. The five team secretaries in our model practice unit have so thoroughly associated individual families with census tract numbers that they can usually go directly to the appropriate section of the files and retrieve the record. (Each team is responsible for about 500 families.) When one is familiar with the location of individual census tracts, one can obtain an overview of where the patients live by viewing the open shelves with their clusters of distinctively colored folders.

Diagnostic Index: Another important element in our data collection system with important applications in the teaching and practice of preventive medicine is the diagnostic index. Simply stated, the diagnostic index is a systematic grouping of patients under an arbitrarily limited number of rubrics which were selected to reflect types of disease and problems commonly encountered in primary care settings. Because problems, symptoms, and other ill-defined states are included among the rubrics, the index is, in fact, a morbidity index. Readers interested in a detailed description of the diagnostic index (or "E" Book) should consult papers by Eimerl (1969), Froom (1974), and Metcalfe (1972). I wish to focus on some of the ways such a collection of pertinent morbidity data can be used to teach preventive medicine.

When each resident either keeps his own index or has a computer printout available to him, he can quickly review the recognized morbidity within his practice. With the minor addition of two modifiers to the three digit code for each problem entered in the index, he can distinguish incidence and prevalence. As his practice experience grows, he can scrutinize cohorts of patients with accidents, poisonings, acute rheumatic fever, suicide, invasive carcinoma of the cervix, and iron deficiency anemia, to name just a few. Review of his cases should stimulate several questions: Could any of these problems be prevented? How does my practice compare with those of my peers? Am I overlooking important problems, or are they not present in my practice? I wonder why I am seeing so many XYZ diseases? Is it because I look for it more than others? Why do most of my patients with problem ABC come from one census tract?

Problem-Oriented Medical Record: Since the accuracy of the entries in the diagnostic index is no better than the diagnostic acumen and coding precision of the physician making those entries, anyone analyzing the data would want to examine the evidence which supported the diagnosis. The only document containing such evidence is the patient's medical record. We insist that a logically constructed and carefully maintained medical record is essential for efficient review. We also believe that the self-discipline required contributes to better patient care by reducing unnecessary tests, medication errors, and overlooked problems. The format we have adapted is based on Weed's Problem-Oriented Medical Record (1969). Near the front of every patient's record is a distinctively colored page containing a list of those health problems judged to be of continuing concern by the doctor. Beside each problem appears a diagnostic code number and the date when the diagnosis

was made. The same code number appears beside all the doctor's progress notes relative to that problem. The problem list serves as a master key to unlock the evidence in the medical record for each problem on the list. Moreover, if it is reviewed at each visit, as it should be, previously identified "high risks," which are considered to be problems just as worthy of inclusion on the list as the presence of serious disease, are brought to his attention.

As a supplement to the master problem list and the titled and code-numbered progress notes, we have found flow charts useful for displaying data in a compact and rapidly reviewable form. Two examples are particularly pertinent to primary preventive medicine: An immunization grid, which contains the patient's immunization history, current status and recommended procedure; and a health maintenance grid, suited to the patient's age and sex, which shows the examiner when certain screening tests and procedures were last done. Which member of the health team is responsible for review and maintenance of these patient care areas is a decision left to the teams.

In addition to acquiring skills and knowledge for the accurate recording of demographic and diagnostic data, the primary care physician needs a working knowledge of elementary statistical principles and methods if he is to analyze this data and draw valid conclusions. He should be familiar with the principles of frequency distribution, population sampling, tests of significance, and the concepts of association and causality. For specific application, in practical circumstances, he will probably need the assistance of expert statisticians and preventive medicine specialists. The statistician or preventive medicine specialist will, in turn, find he can be more helpful if he has an understanding of clinical practice as it exists in a primary care setting.

One major structural aspect of practice with which the combined efforts of the preventive medicine and family medicine/primary care disciplines can come to grips is peer review. This is particularly true with respect to development of a peer review process for ambulatory care. The participation of family medicine residents in the development and operations of such a process must be considered a major structural component of the residency. If my five years experience of teaching Family Medicine residents is any indication, the typical resident is eager to compare the quality of care his patients receive with predetermined norms or with other groups (Metcalfe and Mancini, 1972). Recently, 28 practicing physicians in our area joined our data collection system. In time it should be possible to display for each resident and practicing physician a profile of the problems he has recognized and coded. Appropriate adjustments for differing age, sex, and socioeconomic factors within each practice should permit worthwhile comparisons. Such comparisons should help to identify educational deficiencies, problems in practice management, or trends in practice.

All of these elements of data collection and analysis are integral and important parts of what I referred to earlier as the structure of family medicine. With appropriate modifications, I believe they are useful in any primary care setting which intends to promote both comprehensive and continuing care. In our teaching, we have placed considerable emphasis on systems and organization because we believe modern health care demands it. We also believe that the thoughtful discipline required to perfect and maintain the structure enhances the probability that the individual patient will receive maximum benefit from his encounter with his health care provider.

The Consumer Group: With so much emphasis on organization and systems, we are concerned that the structure may become so rigid or complex that legitimate patient needs may be lost in the interstices. One major approach to monitor this potential problem has been the development of a consumer advisory group. This has been accomplished primarily through the offices of a social worker on the faculty. A letter of invitation was sent to the entire practice. Sixty-eight patients responded (a little less than 1 percent of those over age 24) to form a consumer advisory group. They in turn elected a steering committee for the purpose of securing developmental funding. Our immediate objectives are to familiarize the consumers with our program's objectives, particularly in areas other than direct patient care. The publication of a newsletter is one step in that direction. Another immediate objective is to let the residents interact with patients in a setting where questions from the patients are as appropriate and desirable as from the doctor. Long-range objectives are to involve consumer representatives in many areas of policy, planning, operation, and evaluation of the Family Medicine Group. Possible projects in these areas with implications for preventive medicine are sponsorship of health education classes, conducting community surveys, identifying unmet health care needs. It is our hope and expectation that the value of direct consumer participation can be demonstrated to

our residents and that they will incorporate the lesson learned into their own future practices.

Faculty: "Who should teach the primary care physician?" is a question that has been raised in many quarters. If we grant, as I believe we must, that the primary physician must be superbly educated if he is to do a first class job in a broad and demanding field, then the quality of this teacher should be at least equal to those of any other disciplines. It is self-evident that our medical education system, with its emphasis on subspecialty training, has not produced an adequate number of primary care physicians with the requisite combination of ability and motivation to teach what is known and to explore what is unknown in primary care. The cause is apparent: young physicians in university affiliated residencies seldom have significant contact with practicing physicians, to say nothing of full-time teachers of primary care. It will take time to develop a cadre of teachers for the primary care discipline and it is inevitable that many of the early graduates of the current primary care programs will respond to that need for career teachers and thereby temporarily reduce the impact of these new programs on the supply of primary care physicians.

Since there is a scarcity of qualified teachers, the new programs must look to the well-established traditional disciplines for teaching in specific areas. Using the model described by Hilliard Jason (1970), the traditional disciplines can provide component knowledge and skills which when combined with the developing knowledge and skills peculiar to primary care can produce a new composite physician. With reference to preventive medicine, the needs are evident. The primary physician's task will be preventive as much as curative; the minimizing of the impact of disease will not suffice. To accomplish this task he needs to be able to define realistic obtainable objectives in health care, to use epidemiological skills to determine both the dimensions of the tasks before him and the effects of intervention. He also needs to be familiar with community resources and how best to mobilize them for his patient's benefit. These skills can provide one component. When integrated with components from internal medicine, pediatrics, behavioral science, and other selected disciplines, these skills can produce an effective primary care physician. It is generally accepted that this integration can most appropriately and effectively take place in a setting simulating front line practice with its "real life" validity.

The necessity for validity extends beyond the setting in which the primary care skills are learned, to the teachers who expound them. While it is essential, I believe, to have appropriate role models for the resident, it is equally important for teacher and resident to understand that the ultimate objective of the program is to produce physicians who are different from their teachers in many important ways. In this respect, particularly, primary care physicians should learn in programs where the teaching emphasis is educational, rather than vocational, in nature. The distinction is not just semantic, for the future primary physician (as defined at the beginning of this paper) will be recognizably different from most of those providing primary type care today.

For example, the internist planning to function as a primary physician will need to have some basic knowledge and skill in gynecology, in the recognition and management of emotional illness and in the principles and techniques of rehabilitation. Since these areas are not usually taught by internists, they must be learned from noninternists. The same thing can be said for primary pediatricians, and most of all for the family physician, the most broadly trained of all. Of necessity, therefore, close cooperation between the several departments is essential.

One mechanism for promoting a cooperative spirit is the joint multiple appointment system. In this system, each faculty member among the primary physician group receives an appointment in sister departments which have made their teaching responsibilities for primary physician residency programs. This administrative step legitimizes the working relationships, fosters mutual support, and facilitates the exchange of ideas.

With regard to faculty, two additional questions must be answered. The first is—"What should the resident/faculty ratio be for these new programs?" And the second is—"Can the private practitioner participate?" The answer to the first depends upon the extent teachers in traditional disciplines are able to help carry portions of the teaching load. Millis (1971) recommends a national average ratio of medical students to faculty of 2½ to 1. As yet, there is insufficient experience with graduate programs for primary physicians to know what an average ratio might be, but there is accumulating evidence that education in ambulatory settings is more costly than in an inpatient setting. The ratio of students to faculty in family medicine programs varies from 2 to 1, to 10 to 1. A 5 to 1 ratio appears satisfactory provid-

ing inpatient teaching is shared with other departments. The answer to the second question is a qualified "yes." The qualification has nothing to do with the practicing physician's fund of knowledge or motivation but rather a misinterpretation of the teacher's tasks in graduate medical education. If the practitioner can comfortably use the Socratic or heuristic approach, he will be much more effective with the current graduate physician than if he falls back on many of his own role models who tended to be authoritarian and dogmatic.

The Process

In the preceding sections of this paper, we have considered various components of the setting in which Family Medicine Residents, as prototypes of primary care physicians, learn preventive medicine. We have also described the competencies required in preventive medicine and the structure of a training program. We shall now look at the process by which the resident acquires the attitudes, skills, and knowledge needed to perform effectively.

Selection: The selection process, which is a joint effort involving residents and faculty, tries to select applicants whose career goals are consonant with the goals of the program. Part of the process consists of interviews with three members of the Selection Committee, who try to assess, among other qualities, the applicant's attitude toward primary care in general and family medicine in particular. We have relied heavily on the impressions gathered from the interviews in making our final choices. An indication that this selection process tends to bring to the program residents with the desired attitudes can be seen in the results of an attitude test given on the day the residents begin training. The test instrument consists of questions designed to assess attitudes toward concepts, positions, and situations commonly encountered in family practice. Several questions involved attitudes toward preventive medicine and rehabilitation. There was close agreement among the residents—closer, in fact, than among the faculty! (Appendix I, this chapter).

Training: The residency begins with a four-day orientation period designed to let the resident get acquainted with faculty and staff, to meet and interact with members of his team, and to begin to learn about our systems. Each resident receives an updated "Family Medicine House Officers Manual" containing descriptions of his responsibilities, the roles of all personnel, the objectives of his inpatient rotations, an example of a problem-oriented medical record, and other information regarding the program.

Although the resident spends eleven of his first twelve months on such inpatient services as medicine (4 months), pediatrics (3 months), obstetrics (2 months), and surgery/emergency room (2 months), he returns to the model practice unit two half-days per week to care for his ambulatory patients. The patients are assigned by families (or households) as the families request medical care until each first year resident has approximately 50 families in his "practice." The resident records each contact with the family in that family's medical record, and each contact is reviewed by the resident's team leader, a full-time faculty member. Comments on form, content, and patient management are returned to the resident, either orally or in writing. Periodically, the entire record is audited. (Appendix II, this chapter).

Faculty have regularly scheduled times in the model practice unit when they are to function as preceptors of the residents. No patients are scheduled for the faculty member during those hours. He is available to all the residents for consultation and review in the unit at that time. One of the preceptor's objectives is to help the resident view the patient's immediate problem in the context of the patient's psychological make-up, his roles in his family and community. Often this approach uncovers areas where the resident can initiate action to limit the impact of the problem on others as well as the patient. Both the preceptor and the auditor can assess how effectively the resident is using his time with the patient for health surveillance, and recommend ways to improve his performance.

During the resident's second and third year, he increases both the time spent in the model practice unit and his patient load as he decreases his inpatient responsibilities. During these years, he can choose electives which expose him to health care problems within the larger community. Some elect to work with school physicians and psychologists, and some elect to plan better ways for getting health care to special groups of patients. Others work for short periods in different settings, and still others take a year's leave of absence to obtain an advanced degree in community medicine. (Appendix III, this chapter). The accommodation of diverse interests in one program is a tribute to the supportive elements in the program's environment.

During his third year, the resident receives his first intensive exposure to rehabilitation medicine. Each

resident is required to complete a two-month rotation on one of the University's teaching rehabilitation services. Also during his third year he acquires additional counseling skills during a two-month rotation in ambulatory psychiatry.

It must be emphasized that the resident is released two or three half-days per week from other services to care for "his patients" during the entire three years. He thereby has the opportunity to observe and care for families over a significant period of time. We believe the knowledge and skill gained as he helps families cope with their problems will be very helpful in his practice.

Conferences: Residents at all levels participate in team conferences held weekly or biweekly. The purpose of meeting as a team is to allow open discussion among all members regarding roles within the team, operational problems, and research projects.

Each team is in turn responsible for choosing and presenting the results of a study to the entire program two or three times a year at a weekly Family Medicine Conference. Most of these studies require gathering and analyzing data from the practice. The importance of a system which permits efficient retrieval of data is reinforced. A sample study dealt with the question—"Screening for Cervical Cancer—How Well Are We Doing?" The team presenting this subject first reviewed the literature and arbitrarily selected an acceptable standard of performance. Certain groups were selected for study, the patients in our practice identified (Age/Sex Registry), and their records reviewed. The percentage of patients known to have received a Pap Test within the specified time interval was determined and compared to the previously agreed upon standard. Out of this study, which showed that only 63 percent of our 35 to 40 year old female patients had been screened during the preceding two years, came recommendations for a simple method of reminding patients when their next test was due. A follow-up study is planned.

Another conference was devoted to consideration of what constituted comprehensive prenatal care; another critically examined which screening tests should be performed on an asymptomatic male between 20 and 40, and how often. Both of these topics required a literature search in addition to analyzing data from the practice. And both topics raised a myriad of questions about cost/benefit relationships for the patient, many of which could not be answered because of insufficient data.

It is important for the resident to have sufficient time and stimulation to undertake studies which will have "carry-over" value in his practice. And he needs ready access to educational resources.

The wealth of resources available to developing programs is probably the overriding reason to prefer a university setting. Not only do universities have schools and departments representing allied fields, extensive libraries with ready access to instructional materials, but many are located in areas with a sufficiently dense population to support a variety of public and private health agencies. In a university setting, the problem is not so much where to find the resources as it is to mobilize and coordinate them effectively.

What are the educational resources needed in the model practice unit, in the hospital, and in the community?

The unit should have its own educational resource center consisting of a library, reference files, and self-instructional materials. The library should contain carefully selected reference works, periodicals pertinent to primary care, and adequate working space so that the reference works remain in the library. In planning the library, one must remember that it is part of a functioning model practice unit. Only books useful to the physicians in training should be included, if space is an important consideration as it usually is. Cataloging and arranging the volumes according to subject will increase the library's usefulness. Where possible, the integration of the library with a large hospital or university library can facilitate the exchange of educational materials. Self-instructional materials would include audio and visual tapes, selected programed learning kits, slides and projectors. The reference files would contain articles from current literature, position papers, protocols, or whatever was considered to be of immediate practical value for the day-to-day use of the residents. We have arranged these files according to The Royal College of General Practitioners Modification of The International Classification of Disease. A resource paper entitled "Community Resources for Prenatal Patients" would be located in "Section XI—Pregnancy, Childbirth and Pueperium." Divisons within each section are marked by the same code numbers as the diagnostic index. Thus, the latest recommendations from the American Academy of Pediatrics or the U.S. Public Health Service on immunizations would be found under Code No. 905, "Prophylactic Inoculation or Vac-

cination" in "Section XVIII—Supplementary Classification." Since our residents are familiar with the code because they use it daily to classify what they have seen or the reason for the patient's visit, the thought associations have already been established.

Within the unit or conveniently adjacent should be suitably equipped space for conferences and small group discussions. Probably some of the most effective patient counseling and education takes place when patients participate in small group work rather than receive a lecture, or view a video-tape. Therefore, conference areas should be convenient for patients as well as for the staff.

An important potential community resource is the neighborhood health center with its orientation toward providing health care services for all persons living within a certain area. Those centers which operate under consumer bodies, use the health care team approach, and collect data on morbidity and utilization, can provide the community-oriented primary care physician with valuable learning experience.

Our experience with community-based health centers has been increasing. In 1970, two graduates of the Rochester Program joined Westside Health Services, a federally funded agency which plans separate incorporation this year. As a result of the experience with the two family physicians, the health center's board acted on recommendations of its medical director to provide space, support, and funding for one first year resident to establish his base practice at the center in 1973. This arrangement has proven so satisfactory that the center has arranged for two first-year, six second-year residents, and additional teaching support for July, 1974. The health center pays a portion of the residents' salaries and educational costs. The center, which from the beginning had adopted the family medicine model, including data systems, regards the educational costs as investments to attract well trained community-oriented physicians. For a program training primary care physicians, this affiliation strengthens the community medicine aspect of the teaching, it broadens and deepens our contacts with the community, it allows close observation of graduates in "front line situations," and it distributes some of the costs to those most likely to be benefited.

CONCLUSION

Implicit in this paper is my position that preventive medicine and the primary care disciplines can and should be closely linked. Each has a great deal to offer the other. Preventive medicine, which tends to concern itself with health problems arising from the environment and communal living, needs better access to data about the health problems of individuals and families. Primary care physicians, on the other hand, need a more comprehensive understanding of the communities in which their patients live. If preventive medicine also provides the primary care physician with portable, useful tools in epidemiology, biostatistics, and operations research, cooperative and joint efforts in many important areas of health care research should be one significant result. Equally important should be the professional satisfactions accruing to the practicing physician and the health benefits provided to the patient.

APPENDIX I

Response of Residents [1] and Faculty [2]
to Selected Statements in Attitudinal Survey

6. "In medical practice today, there are sufficient specialists so that a family physician need not assume long term responsibility for patients with chronic illness."

Completely Disagree	Disagree	Undecided	Agree For The Most Part	Completely Agree
R(11) F(3)	R(6) F(1)	R F	R F	R F

9. "In family practice, most patients are not willing to pay for disease prevention or health maintenance."

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
R(2) F(2)	R(10) F(1)	R(4) F(1)	R(1) F	R F

11. "How important do you think it is for the family doctor to be able to utilize the nonmedical specialists (social worker, psychologist) in his community?"

Unimportant	Pretty Unimportant	Undecided	Pretty Important	Important
R F	R F	R F	R(1) F(2)	R(16) F(2)

27. "Health maintenance is neither as interesting nor as profitable as curative medicine for the physician."

Definitely Not	No	Undecided	Yes	Definitely Yes
R(6) F	R(6) F(3)	R(4) F	R F(1)	R(1) F

34. "Except for certain contagious diseases, specific knowledge pertaining to disease prevention is so fragmentary that a physician should limit his efforts to curative medicine."

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
R(4) F(1)	R(13) F(2)	R F	R F(1)	R F

[1] Residents entering Family Medicine Program.
[2] Full-time Family Medicine Faculty.

APPENDIX II

Check List for Audit of Family Medicine Records

Name of Patient: _____ Name of Doctor: _____

Name of Auditor: _____

Date: _____ _____ _____

	Yes	No	Yes	No	Yes	No
1. Is the demographic data complete?						
2. Is there a properly constructed complete Problem List?						
3. Is the Data Base complete?						
4. Are the Progress Notes Problem-Oriented?						
5. Does the record clearly reveal the cause, status, and future plans for each problem?						
6. Was Health Maintenance reviewed and is it current?						
7. Were the investigations of problems logical and appropriate?						
8. Was therapy logical and appropriate?						
9. Were "No-Shows" followed up?						
10. Was every symptom noted by the nurse picked up by the doctor?						

Comments:

APPENDIX III

Timetable for Introduction of Preventive and Community Medicine Concepts and Practices

FIRST YEAR

Orientation Period	1. Determining residents' background, knowledge and attitudes 2. Outlining available community resources 3. Overview of Preventive Medicine in program
Block Time — *Family Practice Unit*	1. Audit of patient care records (see Appendix II) 2. Thrice weekly patient oriented conferences where primary and secondary prevention can be discussed 3. Twice weekly topic oriented conferences where screening, outreach, journal reviews, etc., can be reviewed
Block Time — *In-Patient Services*	1. Rounding and bedside teaching by Family Medicine faculty provides opportunity to ask: "Could this illness have been prevented? What is being done to avoid complications? Plans for rehabilitation? Impact of illness on family?" etc.
Block Time — *Emergency Department*	1. Accident and poisoning prevention 2. Drug control programs 3. Problems with medical care delivery system

SECOND YEAR

Block Time — *Family Practice Unit*	1. Conferences—same format as First Year 2. Peer review using patient records in model practice unit 3. Visit community agencies
Block Time — *In-Patient Services*	1. Review literature pertaining to diseases seen in his patients 2. Present Preventive Medicine aspects of care at case conferences, grand rounds, etc.

THIRD YEAR

Block Time — *Rehabilitation*	1. Intensive exposure to principles and practices of rehabilitation medicine

Block Time —
Family Practice Unit

1. Participate in design and implementation of studies on Family Practice patient population
2. Prepare up-date from literature on specific Preventive Medicine topics
3. Participate in seminars on health care delivery, practice management, etc.
4. Design and carry out selected screening programs
5. Participate in consumer education programs
6. Participate in patient education programs and in-service education of staff
7. Spend time with other models of health care delivery (Indian Health Service, British National Health Service, etc.)
8. Study effectiveness of health care delivery to selected populations (immigrants, prisoners, welfare recipients, etc.)

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INVITED DISCUSSION

Rugh A. Henderson

The preventive medicine competencies and teaching resources presented by Dr. Treat in his discussion of the education of primary care physicians delineate the common goals and potential resources of educators in this field. Although different methods and unique settings guide individual training programs, one can readily identify with a fellow teacher of family and community medicine. The following remarks will emphasize and expand on those principles and techniques found crucial by the Department of Family and Community Medicine of the Pennsylvania State University College of Medicine in providing preventive medicine input.

DETERMINANTS OF THE APPROACH

The introduction of Dr. Treat's discussion describes the impetus given to the current development of educational programs for the primary care physician by various national study groups. The thrust of these reports has been to encourage training of a new type of primary physician who would be responsible for advising, coordinating, and supervising patients' medical care at points of entry into the medical care system. This person would be a physician who functions as a provider of primary care and as a patient counselor and advocate at the patient-physician interface of the health care system. This interface develops at different points depending on the orientation of the patient and the physician in dealing with the various disease processes. Increasing the role of the primary care physician in preventive activities implies in many instances shifting of the patient-physician interface to a time earlier in the natural history of the various disease processes. This of course is the area of primary prevention and early secondary prevention (Leavell and Clark, 1965).

An additional point emphasized in the paper is that the primary physician is one who accepts responsibility for a patient's total health care within the context of his environment including the community and the family or comparable social unit. This implies that the new primary physician bears the responsibility of being the personal public health officer for each patient and family unit under his care. It also implies a community responsibility of the primary physician heretofore delegated by default in many cases to the public health sector. The point is well taken by Dr. Treat that the new primary physician will have to take a "global view" to provide such services and counsel to his patient.

Consideration of preventive medicine competencies under four categories: primary prevention; secondary prevention, to include early disease detection; patient education; and community medicine provides a useful structure for delineating the core of preventive medicine in the training of primary physicians. Care must be taken to create the attitude that prevention, diagnosis, and treatment do not exist as separate patient care compartments. As pointed out in Dr. Treat's paper, this leads to the tendency for check-ups to be directed towards the detection of early disease rather than modification of risk factors to future health. Although the importance of immunization against infectious disease cannot be questioned, emphasis on this important subject can allow the neglect of other preventive approaches by the physician while enabling him to rationalize that he is doing first-class prevention. The primary care physician as stressed in the paper must bear responsibility for the entire health situation. Each step taken should be justified as being a logical rational approach to increase the patient's survival as an independent person. The analogy of the primary physician as a good quarterback not independently performing all functions of each play, but calling the signals also implies that the roles of the various players be understood by him.

In Dr. Treat's discussion of education of the primary care physician, the family medicine program is utilized as a prototype. Inasmuch as I am currently involved in devising a program to instill preventive medicine competence in the family medicine residents in the Department of Family and Community Medicine at the Milton S. Hershey Medical Center, I share Dr. Treat's familiarity with the programs in the field of family medicine.

THE HERSHEY PROGRAM

The description of the Rochester Program pre-

sents a useful framework for discussing the structure of primary care programs. Although most concepts mentioned have been central to the development of the program with which I am involved, their expression has been shaped by the Hershey situation and the processes employed. Reviewing the Hershey Program in terms of environment, site, facility, data systems, patient population, and relationship with other departments is a useful method.

The Setting

The Milton S. Hershey Medical Center which includes a 350-bed hospital is situated at the western edge of Hershey, 12 miles east of Harrisburg in South Central Pennsylvania. The town of Hershey and the surrounding Derry Township are a rural suburban setting. The Pennsylvania State University College of Medicine admitted its first class in September 1967.

The Department of Family and Community Medicine, organized in 1967, was the first clinical department established. All departments are involved in vigorous development at this time. The Department of Family and Community Medicine has worked to create interrelationships with other departments essential for a comprehensive program. There are two model family practice centers, one in the Medical Center and another located about 500 yards from the Medical Center in a student apartment building. In the future there will be a unified model family practice center possessing all the characteristics mentioned by Dr. Treat.

The Department provides service to a large proportion of citizens of Hershey and the surrounding environs. Because this is predominantly a middle-income, working class population, steps have been taken to provide a more varied patient and community exposure to the residents. An affiliation has been developed with the Hamilton Health Center, a neighborhood health center in the lower-socioeconomic area of north Harrisburg. In addition, the Pennsylvania State University is in the process of developing a rural community health care delivery program at Millersburg, about 45 miles by road from the Medical Center. The Department of Family and Community Medicine is serving as the primary responsible department in this effort. The teaching practice sites represent a spectrum of central Pennsylvania primary care practice settings and patient populations. Full-time faculty supervision and community contact is a central theme for each setting.

The Department

The Department is actively involved in the training of family medicine residents, medical students, and two types of new health professionals, the Medex, the physician's assistant, and the Family Health Specialist. The Medex Program is similar to the program initially developed in the State of Washington (Smith, 1972). The Family Health Specialist Program is a master's degree nursing program being developed in cooperation with the School of Nursing of the Pennsylvania State University. The Department is also involved in continuing education of family physicians on a statewide basis.

The Team

The model family practice centers are structured to emphasize the team approach to patient care. The teams include first, second and third year residents and faculty physicians. Medex and family health specialist faculty and students are also assigned to the teams. Nursing, technical and clerical personnel complete the teams. Residents are encouraged to work together with physicians' assistants and other allied health personnel. This involves the sharing of roles in the care of the patient. The health care teams are not rigidly structured; indeed considerable variation exists in both personnel and experience levels represented.

The function of the health care team should be such that response is determined not by the availability of physicians or other health care personnel but by the nature of the situation. In order for the team to function properly, the patient must be directed to the proper member of the team to maximize quality and continuity of patient care and provide satisfaction. Comprehensive preventive medicine can be practiced by the primary physician only if a reasonable degree of stability of relationships with patients is maintained. The team concept enables this to take place by providing additional receptor sites for the patient to interface with the primary care delivery system. This should tend to diminish the nonproductive transfer by the patient from one source of care to another. By means of weekly team meetings the model family practice unit teams work toward this goal as an integral part of learning to deliver primary care.

The Data System

As in the Rochester Program a data system has

been developed in order to teach the resident the importance of considering patients as groups as well as individuals. Patients are registered in the system by name, address, and social security number. Also recorded are the marital status, religion, race, work status, sex, birth date, family status, educational level, and number in the family. The geographical location of the patient is established by a residence code which locates an individual by city, borough, or township if he resides in the practice area. Patients are also identified by patient care team and the physician they consider responsible for the management of their care. Such data makes possible the grouping of patients by single or multiple demographic characteristics. A diagnostic index as described by Dr. Treat is used at Hershey to identify problems dealt with at each patient encounter. Coding is done by a trained clerk using a modification of the Royal College of General Practitioners Code. The coding is done directly from the medical record. The coding clerk also audits the adherence of the record to the problem-oriented approach completing an important feedback loop.

The data system has been developed in cooperation with the Lancaster General Hospital Department of Family and Community Medicine. Through the use of the same computer service and programs the benefits of the community hospital approach and the university approach can be compared and contrasted. The Family and Community Medicine Residency Program at Hershey considers development of further ties with community hospital programs essential to its continued growth and the growth of the programs in community hospitals.

A data system to enable the physician to learn from his practice is very important (Supplement to Medical Care, 1973). The point made by Dr. Treat that the construction of such a system in an established practice is a formidable task would be strongly supported by an individual who has been involved in such an undertaking. The primary physician in training must learn that the health profile of the total practice population should be considered equally with the health problems of the individual. Each primary physician should have a variety of systems available to him during his training. The Hershey Program offers both the manual and computer options to the resident physician. The availability of a computer system with a coder has encouraged the residents to code for themselves. The computer system has stimulated their interest in becoming more involved in understanding the problems of their practice populations and their effectiveness in dealing with them.

The Preventive Environment

The contention that the ability to scrutinize groups of patients and to compare the handling of particular problems among different providers in the same and similar situations is important to the training of a primary physician is correct. This enables the primary care physician to develop a working knowledge of elementary statistical principles and methods through experience with the patients in his practice. The teaching of these concepts by a preventive medicine specialist can be expedited, if he has a first hand familiarity with the primary care setting. This is best accomplished by being an integral part of the residency training activities. By the same token, the primary care physician in training is most likely to accept the importance of such concepts if he has had the opportunity to apply and test them as part of his primary care training.

The willingness of the family medicine resident to become involved in assessing his quality of care and that of his colleagues has been supported by the experience of this author and Dr. Treat. Such involvement provides another source of feedback to improve the quality of the problem-oriented approach to medical care. This involves describing a problem at its appropriate level of definition at the particular time which is important if the resident is going to learn preventive aspects of care. Too often the recording of the patient's problem has been an all or none phenomena. The threshold for physicians' recognition has been the existence of disease. The problem-oriented approach has caused the primary and secondary portion of the preventive spectrum to appear as a more significant part of the medical records. All the tools mentioned including the master problem lists, titled, and code numbered progress notes, flow charts, immunization grids, and health maintenance grids are important components of the problem-oriented record (Weed, 1969).

Selection

Selection of residents is a difficult task for any family medicine program. At Hershey as in Rochester this is a joint effort involving residents and faculty. Applicants are seen by at least two faculty members and one resident. The interviews are ar-

ranged to direct candidates who have specific interests to faculty and residents who share these interests. Although attitudes towards primary care in general and family and community medicine in particular are important considerations, so is the basic personality of the individual. The candidate's approach to people and his interpersonal skills are key factors in determining his potential for the program and family medicine. Physicians who are empathetic and interested in people have potential for preventive medicine training. They wish to anticipate the problems of their patients to minimize the impact on their health.

Training

The residency program is designed to provide core experiences while allowing a maximum of individual flexibility. Core rotations in the first year include two months each of internal medicine, pediatrics, obstetrics and gynecology, surgery, and one month of cardiology. Responsibilities of family and community medicine residents are identical to peer residents of other specialties on these rotations. In the second year, core rotations include two months of inner city medicine at the Hamilton Health Center and two months each of inpatient psychiatry, emergency care, and pediatrics at Hershey. The third year program centers around the model family practice units with a potential of six months available for electives.

The first year resident assumes the direct care responsibilities for approximately twenty families within the context of the team. In addition to being assigned half a day per week in the family practice center throughout the year, the first year resident spends a full month with the team. The second year resident spends at least two half days per week working with his team. The third year resident, during his six months model family practice unit training, expands his responsibilities in family care as a member of the team. Beginning with the second year level, residents are also involved in departmental teaching programs for medical students, family health specialists, and Medex. Resource libraries and a department document and curriculum center provide resources for both the patient care and teaching role.

The importance of conferences cannot be understated. The weekly team conference has already been mentioned. In addition a weekly two-hour resident conference is organized by the residents and directed by the chief resident. The usual format is a resident presentation with a guest consultant. This provides an excellent format for the introduction of preventive and community medicine input work by the faculty with background in the area and by representatives from the community. One resident conference per month is devoted to resident input to the program. This has also served as a faculty forum for presentation of new ideas to the resident group for consideration. A weekly two-hour psychiatry seminar is in the process of being implemented.

Community Contact

Community medicine and research electives can be taken to pursue preventive medicine, community medicine, and health care delivery interests stimulated by involvement in the core residency program. Experiences such as industrial medicine, prison medicine, public health agencies, health planning, and community surveys are designed for residents wanting more intense exposure in these areas. In many cases the resident is also able to maintain his team role while so engaged.

The involvement of a consumer group in the family medicine program at Rochester is an interesting and positive development. Consumers must be able to have significant involvement to maintain their interest. The demonstration of the value of direct consumer participation is an important lesson for the physician being trained in primary care. If he is going to be able to deal with his community as a health care provider, he must be able to listen to people from disciplines and situations far different than his own. In the Hershey setting consumer input is most effectively mobilized in an unstructured fashion by the participation of patients in various teaching activities particularly on the medical student level. Since second and third year residents are actively involved in these programs they must cope with their patients away from the familiar office setting. Additionally a different consumer type is demonstrated to the resident during his rotation at the Hamilton Health Center.

The position taken by Dr. Treat that preventive medicine and primary care can and should be inseparably linked can only be emphasized by expanding on this premise. The artificial division that has existed between anticipatory (preventive) med-

icine and reactive (curative) medicine is no longer acceptable. The new primary physician should be equally oriented to prevention as to dealing with disease. As a new health professional with roots in both general practice and public health, his training program must provide him with knowledge and techniques to function in this role. He needs an understanding of the processes by which a community deals as a group with its health problems. A team approach to care is required. The result is an increase in the ability to deliver preventive care, and an increase in the flexibility of the practice allowing the physician more time to become involved in analysis and management of the activity. Extension of the practice should be possible through the physician and through other members of the health care team into the community. The primary care physician then becomes an active participant in his rightful community role as a health resource as well as a medical resource. If primary care residency programs achieve this goal, then the proposed modification of the health care delivery system will be accomplished.

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INVITED DISCUSSION

Gordon Hall

In commenting on Dr. Treat's paper and the issue of programs for primary care training, I will briefly relate the philosophy and structure of the program at the recently founded Rockford School of Medicine. I shall be representing the ideas and work of Drs. Dave McGaw, Robert Evans, and others, as well as myself. By using existing health facilities and manpower, the school is accomplishing its objective of preparing clinical medicine practitioners. The education of physicians should be and can be cost-effective—funding of medical care education through reimbursement received for quality care. (Interestingly, this is becoming political gospel!) Bob Evans (1973) has discussed the basis of these concepts at some length in various documents.

Students come to Rockford after 1 year of basic medical sciences at another medical school in Illinois. They then spend 3 clinical years at Rockford. The curriculum during the first 2 years is organized by systems taught in 4- to 8-week blocks by those best qualified to teach them. For instance, the G.I. tract might be taken by a couple of internists, a surgeon, a pediatrician, and others interested in that area. All such faculty are drawn from the ranks of private practicing physicians. The teaching takes place primarily in the physicians' offices.

The last year is viewed as a transition from medical school to residency. During that year and for two half-days a week of the preceding 2 years, students work directly with practicing physicians in their offices or in one of three community hospitals located in the vicinity of the office practice. Practice offices involved in the program surround the city of Rockford, covering the four points of the compass. Three of the four sectors of the community had no medical care whatsoever when our program started. Now, the school has opened offices in buildings vacated by physicians. I run one of the office practices. Our patient panel, if you will, is that group of patients willing to present themselves to such an office for medical care.

What do we think we're doing? First, we're getting the student in contact with the patient, and we think students choose medicine for this purpose. In other words, they want to take care of people. Secondly, we're giving the student the chance to develop early those frustrations which take those in practice 4 or 5 years to learn how to handle. These include more knowledge in preventive medicine, the operation of a health care system, the usefulness of a public health nurse, the method of getting a patient to a hospital, and other frustrating situations. By introducing the physician to the patient and keeping him in contact with the patient, the physician develops what he considers important in preventive medicine. A student cannot look at a patient with diabetic neuropathy, metatarsal heads sticking out of the foot, and not wonder how the patient got that in the first place. After spending 8 months curing the patient, he's not going to let it happen again. That patient and others with similar illnesses will get preventive care.

Finally, we want students to feel at the crunch level about the patient's concern. In essence, our consumer feedback is simple—if they don't like us, they shy away, and they don't pay us. Our feeling is that a student will modify his behavior early in his training if he gets such feedback. If he gets good feelings from his patients, if he's doing something right, he really cares and will continue to care.

We are attempting to do some of the things mentioned by Dr. Treat, specifically, in the areas of diagnostic coding and peer review experience. We code all encounters, using the Royal College of General Practice system. These data are then entered into a computer for ready retrieval. Its relevance to the average family practitioner is questionable, however. The students are introduced to peer review through participation in Saturday morning conferences where their charts and those of their physician mentors are reviewed according to protocol. By the time the students graduate, they will assume that this is a healthy part of medical practice. Hopefully, they, in turn, will have the interest to do as Bjorn and Cross (1970), and have outside experts consult in evaluating their practices.

Clearly, our students do not enjoy the breadth of innovative experiences described by Dr. Treat in the Rochester program—the health care team, etc. I don't know whether that is good or not. I do know

that the small town physician or primary care physician generally does not enjoy those advantages. Our program, by its nature, questions what model should be constructed. Should it reflect that nirvana that we all hope for in the year 2015, with the multidiscipline health care team, or should it reflect that which the student physician is most likely to encounter when he returns to his hometown to put into practice what he has learned? We have chosen the latter. If the student can survive in this situation, learning primarily to rely on his own wits and skills, he'll be well-equipped to survive in Moline, Illinois, or any of the other towns of a few thousand people, which are crying for physicians.

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DISCUSSION

PAYTON: The last description of the Rockford situation reminds me that I was going to mention something about practice management knowledge following Dr. Baker's presentation on curriculum. A necessary factor, economics of health service delivery, was omitted. In light of economic considerations, I find the teaching situation in Rockford appalling because of the well-known difficulty in financing, hence delivering, any kind of preventive services out of the fee-for-service base, out of the office-generated income.

Returning to the topic of preventive medicine and Dr. Hall's comments about no ideal approach to the training situation, I would say that unless we can demonstrate to students that there is a possibly new and better way of doing things, they won't go into practice knowing how to improve upon the old model.

I'd like to have a psychologist available to do a lot of things with my patients: to prepare parents for child rearing, for example; to assist me in the evaluation of emotional problems, et cetera. Yet, how am I going to pay the office expense of that psychologist when he's not reimbursable under Blue Cross-Blue Shield?

FARLEY: For clarification, I would like briefly to outline the financing of the Rochester family medicine program, since I used to be a doctor and now I hunt for money to keep us going! For a yearly budget of roughly $800,000, I have to find about $300,000 a year above and beyond what we generate from fee-for-service practice ($200,000) and third party payments ($300,000) for the in-patient care that the residents provide.

ABRAMS: Dr. Hall, do you have a response to Dr. Payton's comments?

HALL: As pointed out, we have the feeling that preventive medicine ought to and can be pervasive in the clinical setting as part of good medical care within the existing health system. For certain preventive services, we have available a local public health department. This is the same health department that the other physicians in the community must work through. It's not unrealistic to ask students and residents to also work through that organization to obtain certain services for their patients. If they find they are frustrated by inadequacies in that organization, we think they'll suggest changes in the future to see to it that the community in fact bootstraps itself.

ABRAMS: Have you considered organizing prepaid arrangements which might encourage delivery of preventive services?

HALL: Not at present.

ABRAMS: Do you see that as something you need to do to help in all the things we're talking about?

HALL: That is being discussed. But at the moment, in northern Illinois, there is no model prepaid plan. The closest we can come to it is a Chrysler assembly plant in which the union has arm-twisted Blue Cross into providing practically all aspects of in- and out-patient care and prescriptions.

STOKES: The irony of the situation is that going to HMO prepayment may not necessarily do what you would like. One of the first things that has been happening in California in HMO's in their attempts to operate at reasonable costs is they are negotiating away certain services. Preventive services are usually the first thing to go. So just switching delivery and financing mechanisms doesn't necessarily insure that you are going to have preventive services automatically built into your practice. It has to be something that is institutionally supported more than just through financing.

KISSICK: Two comments on financing: First, the President (Nixon) sent his health message to the Congress yesterday (February 20, 1974). I found most fascinating that the *New York Times* identified in its lead that the President speaks out on health care costs, and the *Washington Post* in its lead identified the President's determination to redistribute physicians geographically, by specialty, and specifically, to bring about more family physicians. He's to pursue the latter by restructuring the financing of medical education.

Man is a rational animal, an emotional animal, and many other things, but he's also an economic animal. My guess is that a severe restructuring of the financing of medical education by the Congress of the United States would bring about rather dramatic change.

In medicine we look around to find how things are done. The whole Flexnerian phenomenon is so

extraordinary because one man examined all the medical schools in the United States and Canada and concluded that one was adequate, and the path for medical education was for everybody to replicate that one. When the report was finally fully implemented by about 1960, almost all schools looked like Johns Hopkins did in 1910. We may soon have an analagous experience with primary care if the society really puts the lever on us.

I say this because I sense that the leaders in family medicine and preventive medicine are here gathered. If Congress moves forcefully in this direction, people are going to be looking to us and paying us for answers that go beyond where experiments have carried us.

Having said this, I'd like to try to offset my earlier long-range pessimism with some short-range optimism regarding financing and the delivery of preventive services.

Many of the problems which have been raised about financing, prevention and so forth, can be solved if we move beyond the scriptures and the gospels. I have been as guilty as the rest of you around the table in writing these. I like to think I'm the St. Paul of the movement. In these, we really fall back on our druthers rather than asking some rather bold and embarrassing questions of ourselves and the system.

There's been a very refreshing influx of economists in the last few years who are beginning to ask some of these questions and are beginning to point out some things about distribution of manpower and utilization of services and trade-offs that the consumers will make and how you deal with problems that won't sell in traditional ways. Seat belts never sold through the power of personal persuasion. Congress passed a law, and now everybody that buys a car buys a seat belt. It's a preventive measure.

We, as physicians interested in preventive medicine, agonize over the fact you can't make any headway with smoking, with diabetes, or obesity or hypertension. One of the drug firms has developed what they call Project Health, a program aimed at modifying lifestyle, changing dietary habits, stopping smoking and so forth. Corporations are buying it and encouraging their executives to enroll. Why? Because the corporation realizes that if an executive vice-president drops dead in his job, it costs them $175,000 to replace him.

It's fascinating to see all over the campus at the University of Pennsylvania placards for anti-smoking clinic. The fee is $100. If you attend the 6-week followup and pass the test, you can get fifty bucks back. Reimburse fee mechanism.

I'm suggesting that there are a lot of directions in which things are going, and there are going to be multiple option strategies that we'll find ourselves in the midst of, and we're going to do some things that we may not like in terms of our values, but which nonetheless achieve the preventive ends which we espouse. We are a pragmatic society. We will respond to certain kinds of incentives, particularly economic ones, and we've not looked at that very imaginatively in our health care plans. We've been fairly pedestrian, saying, "It's either fee-for-service or prepaid group practice." There are lots of ways of mixing it.

DISCIPLINES

This section, in two parts, focuses upon those disciplines and areas of expertise in preventive/community medicine which are of particular relevance to primary care practice and hence to primary care educational programs. The first part deals principally with various applications of epidemiology and quantitative skills, while the second part emphasizes application of social and behavioral sciences to a variety of community health problems encountered in practice.

Dr. Stokes first differentiates between those preventive medicine strategies suited to delivery in the personal health service setting and those not so suited. The paper then discusses the need for and use of various forms of clinical, evaluative, and operations research in primary care. Dr. McWhinney's discussion emphasizes the important contribution of epidemiology especially in establishing primary care departments on sound intellectual foundations. "Tactical" and "strategic" applications of epidemiology to primary care, as well as epidemiologically-based research in the Department of Family Medicine at the University of Western Ontario, are described. General discussion identifies the need to develop physicians with combined expertise in both the measurement sciences of preventive community medicine and in primary medical care in order to provide the appropriate teaching and research resources for primary care programs. Attention is given to questions of financing and training of such persons.

Drs. Falk and Scutchfield's paper first depicts the contemporary primary care movement as a social phenomenon, resulting from concerns of some health professionals, other health workers, consumers, and legislators. It becomes incumbent upon the primary care provider to have knowledge of and methods for working with those social institutions and phenomena which relate to health service delivery. The core disciplines of community health are described; namely, biostatistics, epidemiology, environmental/occupational health, health services administration, and health education. Some pertinent aspects of social science, economics, and politics are discussed.

Dr. Scutchfield's formal discussion complements the lead paper by highlighting the special role for community medicine departments to play in applying their spectrum of disciplines to assessing health prob-

lems and health service needs—"community diagnosis." Often, the findings of such assessments will be directly applicable in the development of primary care services and accordingly should be well understood by primary care providers. The general discussion touches on several ways that community diagnosis and primary care might interact.

4

PREVENTIVE STRATEGIES, RESEARCH AND EVALUATION IN PRIMARY CARE

Joseph Stokes III

INTRODUCTION

Although Dr. McWhinney and I have been asked to focus our remarks on the subject of evaluation and research in primary care, I am going to begin by listing a few premises related to both the practice and teaching of preventive medicine. After stating these premises, I will then review the general strategy by means of which prevention is implemented, particularly as it relates to primary care. Finally, I will return to our assigned task by presenting the evaluation model and suggesting a few problem areas ripe for research by those concerned with improving the practice of primary care. I will also suggest how epidemiologic methods can help to solve such problems.

PREMISES

My first premise is that the practice of preventive medicine is substantially more difficult than is clinical medicine. The clinician almost always deals with patients seeking help in solving health problems, many of whom need little more than a sympathetic ear. The practice of preventive medicine, at least within a clinical context, demands that both patients and physicians act to avoid anticipated but as yet unfelt events. Unfortunately, it is much easier either to deny or accept the risk of potential catastrophes than it is to avoid them, particularly when such avoidance depends upon change in entrenched patterns of behavior such as cigarette smoking. Preventive medicine is further complicated by the fact that one is almost always faced with difficult trade-offs between the risk of developing disease and the adverse side-effects of preventive procedures such as vaccine-associated poliomyelitis, allergic reactions to prophylactic antibiotics and the complications of oral contraceptives. It has been wisely written *primum non nocere*, and although patients usually accept troublesome side effects of therapeutic agents, they are less tolerant when preventive interventions cause disability and death. It is for this reason that we need to calculate and consider such trade-offs as precisely as possible.

My second premise is that the preventive attitude should pervade every aspect of clinical medicine. The objectives of both preventive and clinical medicine (and most certainly primary care) are the same, namely to maintain and restore health. Therefore, both prevention and therapeutics share a common goal; it is only the strategies that differ. Unfortunately, we suffer from the lack of an operational definition of health to use as a guide to attain this goal. For instance, Dr. J. W. Bush (1975) has been developing a two-dimensional definition of health with functional status on the ordinate and time as the abscissa. He defines and evaluates a series of functional steps ranging from full physical and social function without symptoms at one extreme to death at the other. He then calculates the transitional probabilities of moving from any existing level of function (at T_0) to all other levels at some future time (T_1). This latter represents a prognostic dimension and the factors which determine these transitional probabilities do not necessarily affect functional health status at T_0. For instance, hyperlipidemia, *per se*, does not affect function but it does help estimate the probability of developing coronary heart disease and other manifestations of atherosclerosis which will affect function at a later time.

In one sense, my third premise is a corollary of the first: Since preventive medicine is so difficult it requires generous resources and strong institutional support. Physicians should not necessarily expect their patients to stop smoking even after a passionate presentation of the compelling facts. Dr. John Farquar and his associates (Beyers, 1974) have shown that group counseling by specially trained behavioral scientists is the most efficient means of effecting such change thus suggesting that specialized smoking withdrawal clinics may represent a new institutional requirement of the practice of preventive medicine. Obviously, such clinics will cost money which as yet

cannot be recovered through third party reimbursement. Although an ounce of prevention may be worth far more than a pound of cure, society still finds it difficult to act according to this ancient adage. As a result, it is much easier to muster the resources for the surgical management of carcinoma of the lung than it is to prevent the disease in the first place. Firefighting has a far stronger emotional appeal than does fire prevention, and the resources required by the health system are not allocated by primarily rational criteria.

My final premise is that the marriage between community, preventive, and social medicine on one hand and family medicine and primary care on the other is a very healthy one. Both disciplines have much to contribute to the other. I feel so strongly on this point that both functions are currently encompassed within a single department at the University of California, San Diego; approximately one-third of the medical schools in the United States which have family practice programs have analogous organizational arrangements (ATPM, 1974).

PREVENTIVE STRATEGIES

Environment

The term, public health, was first used by Wolfgang Rau in 1764 (Rosen, G., 1958) and the 200 years since that time have taught us that the most effective means of preventing illness is by altering the environment rather than modifying the host. By and large, such environmental interventions have been implemented by exercising the legislative and regulatory power of the state. The decisions to chlorinate common water supplies and to pasteurize milk were basically political rather than medical decisions and practicing physicians often did as much to hamper as to help their execution. To this day, the easiest means of obtaining raw milk in the State of New York is by obtaining a physician's prescription. Regulations controlling food handling, housing and highway construction, and automobile design represent other ways in which we have reduced environmental risks to health. Unfortunately, the most efficient manipulations have already been made. What's more, there are limits to what society will tolerate. Some still find chlorinated water distasteful and others steadfastly prefer raw milk, although neither represent a political force capable of turning back these pages of public health history. Prohibition clearly reduced the incidence of cirrhosis of the liver and undoubtedly had other favorable effects; nevertheless, society concluded that its net effect was negative and that other means should be used to control the excessive use of ethanol. One can anticipate the hue and cry were the United States to legislate prohibition of the production and consumption of cigarettes. Nevertheless, we have far from exhausted the health benefits that can be gained through environmental manipulation, and public attitudes do change. For instance, smoking, alcoholism and other forms of drug abuse all represent various forms of coping behavior.

Cassel (1974) and others have suggested that society should pay more attention to crowding and other aspects of the social environment. The elimination of poverty might well represent a milestone comparable to the cleansing of central water supplies. However, it will be much more difficult and require much more money to accomplish. As Geiger points out, residents of both the urban and rural ghettos need "bread" far more than medicine, and medicine should never contribute to either the romanticization or institutionalization of poverty. Geiger demonstrated at the Tufts-Delta health care program at Mound Bayou, Mississippi, how an innovative health care system could not only provide health care services but could also catalyze certain improvements in the social, economic and political environment oppressing his patients. He also found that health care has its limits as a power base from which to effect such social change. Whenever possible, practicing physicians should be agents of social change, and the annuals of medicine are replete with such acts of courage as exemplified by John Snow removing the handle from the Broad Street pump.

Host

The other major preventive strategy acts to directly protect the host. This is what I mean by the term, clinical preventive medicine, and what Drs. Schneiderman and I have recently summarized in a chapter of *A Textbook of Family Practice* (Stokes and Schneiderman, 1973). Fortunately, some of the newer models of delivering comprehensive health care represent fresh opportunities to synthesize preventive and therapeutic medicine. Although it is beyond the scope of this discussion to review

each method in detail, I will summarize below each of the major categories.

Health Education: First of all, the physician should impress upon all of his patients that most adults serve as their own physician most of the time and that it is only under exceptional circumstances that they turn to health professionals for advice. Therefore, it follows that patients should be instructed not only regarding good health habits for themselves and their dependents but should also be given first aid instruction and informed of those symptoms that warn of the presence of early and remediable disease. Finally, they need to be taught how and when to call upon the health care system for help when needed.

More selectively, certain patients with chronic diseases such as hypertension, coronary heart disease and chronic obstructive pulmonary disease should be instructed as to how they can help in their own management. For instance, more physicians should copy Dr. Kenneth Moser (1973) who runs a course for patients with chronic pulmonary disease at the University of California (San Diego). He has demonstrated that those so instructed not only function better but also utilize fewer health care services during the course of their illness. We should be doing the same for those patients with coronary heart disease and for those suffering from other chronic diseases. The sick patient is the world's best motivated student and we should take full advantage of this fact.

Unfortunately, few data are available as how best to effect health education. It is clear that different patients learn in different ways and that our approaches should vary according to age and socioeconomic status. It is also clear that certain patients are better motivated to engage in such health education behavior, but we need far better data regarding these points.

Health Screening: After an initial wave of overoptimistic enthusiasm we are gradually developing a better balanced and rational view of health screening. As the recent series of articles in *Lancet* (Whitby, 1974) demonstrates, there are patients with unrecognized and remediable diseases and risk factors that can be identified and treated more effectively during their presymptomatic phase (e.g., carcinoma of the cervix). Such tests as the cervical smear cytology have already been well accepted into the practice of primary care although healthy debate as to their effectiveness and efficiency persist (Yule, 1972). More effective methods of treatment have also added increased importance to screening for diseases such as essential hypertension. However, we should be rigorous and selective in deciding which tests should be applied to which age, sex and other special risk groups, always keeping in mind that we seek the remediable, and as yet unrecognized, disease and risk factors.

Immunization: Specific immunization is the classical method of clinical preventive medicine designed to protect the host against anticipated exposure to infectious micro-organisms. Despite the routine and ritualistic administration of these vaccines, their proper use requires a great deal of knowledge regarding the agent, host, vaccine and the natural history of the disease. In every case the decision as to whether or not to vaccinate any given patient at any given time is based upon a balance of risks as I have discussed above.

Immuno-, Chemo- and Antibiotic Prophylaxis: There is a growing list of special circumstances calling for administration of immunoglobulins, antibiotics and other drugs to effect both the primary and secondary prevention of a broad spectrum of diseases extending from rheumatic fever to thromboembolic disease. The value of such prophylaxis is well established for some of these circumstances. Unfortunately, abuse persists and it has been demonstrated that such prophylaxis is either of no benefit or actually detrimental in many circumstances. Therefore, the clinician should maintain an attitude of responsive skepticism to new protocols as they are proposed.

The Prevention of Pregnancy, Childbirth, and Congenital Defects: The advent of oral contraceptives, genetic counseling, amniocentesis and changing social attitudes has resulted in the very rapid development of a new facet of clinical preventive medicine of which all primary physicians should be well aware. It has been recently estimated that 40 percent of all mental retardation can be prevented through the application of proper maternal nutrition, avoidance of teratogenic drugs and other agents (e.g., rubella), selective abortion based upon amniocentesis (e.g., Down's syndrome), and the early recognition and proper management of a few rare diseases such as phenylketonuria and galactosemia (Stein, 1975). All of these procedures should be an integral part of primary care; we should no longer depend upon local health departments to fill the gaps that still exist in clinical preventive medicine.

EVALUATION AND RESEARCH

Finally, I come to the subject originally assigned, that of evaluation and research in primary care. First, let me make clear that I do not use the words evaluation and research interchangeably. I believe that there is a clear distinction between the two. Evaluation should always be applied to any important task to determine whether or not the goals and objectives were ultimately achieved. The means by which such evaluation is to be carried out should be planned in advance not only to assure that objective and predetermined criteria will be used for evaluation but also to assist the planning process in establishing explicit and precise goals and objectives. The evaluation process is to set goals, defining them in measurable terms. Then determine how closely these goals can be achieved. Unfortunately, one usually falls short of achievement, thus leaving a gap. Some kind of action to correct these deficiencies can then be taken.

Research is different in that it poses questions at a higher level of significance, the answers to which have wider application and often represent a true step forward. At the moment, the family medicine movement is being swept along by a wave of social concern not unlike the community medicine movement of the 1960's. A movement is not a rational process but a gut reality. Having ridden the crest of the community medicine wave, I would caution some of you as to the hazards as well as the thrills. One of the things that particularly concerns me is that the family medicine movement has taken an anti-intellectual twist which is, therefore, also anti-research. One of the reasons that I am pressing so hard for the melding of family and preventive medicine is that classical academic preventive medicine has been a little too precious, intellectual, iconoclastic, conceptual and isolated from the real world. On the other hand, as previously stated, the family medicine movement is leaning in the opposite direction. My hope is that a close relationship between the two will bring them both into better balance.

What then are the questions which family medicine research would try to answer? I'm going to present four general examples, but I do not pretend that my list is complete.

My first suggestion is that family medicine can improve our understanding of the clinical method. It is remarkable how little systematic information we have about the clinical method after all these years. The work of Elstein and others at Michigan State represents an example of what can be done (1972). I'm also impressed with what Smith and McWhinney (1975) are doing in studying how family physicians make diagnostic and therapeutic decisions as compared with internists.

The second important research priority is the development of better health information systems. We must analyze critically the information upon which we base clinical decisions and learn to manage such data more efficiently. Information must be available to effect decisions. If it's stored in the stacks of a library, it will not bear on decisions made on the wards. Only if it is accessible can it have any influence on the actions that we take. On the other hand, we have a great deal of information cluttering up our medical records which is trivial and not useful in any way (Stokes and Hayes, 1970). Here is where the algorithms required by computers can be helpful. Fortunately, computers are so simple-minded that they need precise instructions at every step of their logic. The discipline required to write such programs should be very useful to physicians. Obviously, if you feed a computer garbage it will spit it right back at you. It is not a sieve, only a speedy workhorse. If your data isn't clean and crisp the computer can't help either clean it up or tighten logic.

A third research priority relates to the need for more and better clinical trials, including those which compare preventive strategies. A classical clinical trial selects a cohort of patients, then randomizes its subjects between an intervention and a control group. Intervention is then undertaken holding the control group as constant as possible. Outcome and process criteria are then compared. For instance, at the moment there is a 30 million dollar annual investment in the Multiple Risk Factor Intervention Trial and the more selective programs of the Lipid Research Clinics and Hypertension Detection and Followup studies of the National Heart and Lung Institute. The general objectives of these programs are to identify patients at high risk of developing coronary heart disease and other complications of atherosclerosis and then to randomly allocate such subjects between intervention and control groups. The logic is simple but the logistics are horrendous.

Such experimental techniques also present problems. They are clumsy in that they require so many carefully selected and cooperative subjects. It is also difficult to maintain double-blind design and the

findings are often difficult to translate back into the "real world" of medical practice. There are also vexing ethical problems regarding nonintervention as it relates to the control group. Fortunately, other methods are now available including the continued development of multivariate analysis which can be applied to observational, nonexperimental settings. The advantage of these techniques is that they can be much less disruptive. For instance, the Framingham Study set down at the beginning approximately 25 explicit hypotheses from which it was later able to define coronary risk factors without any intervention whatsoever (Dawber et al., 1964). A current example, which is perhaps more closely related to primary care, deals with emergency medical services. Here again, Dr. Bush and his associates have proposed using functional health status as the dependent variable on one side of the equation and a host of independent variables on the other. For instance, one can evaluate the size of the hospital, the amount of training of its personnel and many other factors in order to determine how they relate to health outcome. Hopefully, such analyses will allow us to explain most of the variance in health outcomes among different emergency services. Although there are several assumptions in the use of such a method, they are not as restrictive as has been classically assumed (Bush, 1975). Such techniques may have many potential applications to health services research, particularly as it impinges on primary care.

CONCLUSION

In conclusion, I would merely restate that it is very doubtful that clinical medicine, in general, and primary care, in particular, will ever represent the optimum context within which to practice preventive medicine. Nevertheless, practicing primary physicians already have available to them many ways of effecting both primary and secondary prevention which are of proven benefit and highly efficient when compared with the traditional diagnostic and therapeutic management of symptomatic disease. Developing systems of health care represent a fresh opportunity for physicians not only to incorporate established preventive methods into primary care but also to systematically evaluate their effectiveness and efficiency (Cochrane, 1972) Primary care physicians should also engage in research to improve their preventive as well as diagnostic and therapeutic strategies.

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INVITED DISCUSSION

Ian R. McWhinney

I should like to begin by taking up a point made by Dr. Stokes: the risk that family medicine may become a "gut feeling" rather than an intellectual pursuit. With departments and programs developing at such a rapid rate, I see this as a very big risk.

We can learn a very useful lesson from what happened in the education of teachers. In his book *Crisis in the Classroom*, Silberman (1971) describes how the education of teachers became separated from the academic mainstream, cut off in teachers colleges from its academic roots in philosophy, literature and history. As he went round from one teachers college to another, Silberman found a monotonous pattern of superficiality, triviality and intellectual ossification.

This is a cautionary tale which we would do well to ponder. I think it is very important that, in this period of rapid growth, we ensure that the intellectual foundations of primary care are well laid. This I see as the greatest benefit from the marriage between preventive medicine and family medicine. Epidemiology is the basic science of preventive medicine. I think we can identify epidemiology as one of the basic sciences of family medicine as well.

Of course, we in family medicine have other academic roots: in the behavioral sciences, in the humanities, and—like other clinical disciplines—in the biological sciences.

Our knowledge is applied—as Dr. Stokes has told us—through the two major strategies of environmental engineering and host intervention. Environmental engineering is the province of the public health worker: the doctor who deals with populations rather than with individuals. The primary physician practices preventive medicine mainly through the individual. The distinction is useful, but should not be considered absolute. The primary physician is also concerned with the health of populations, but his focus is more on small population groups such as the family or work group, or the population of his practice.

The primary physician uses two preventive methods: the tactical and the strategic. In the tactical method, he applies his knowledge of health risks to the patients who are consulting him for all kinds of problems. Since, in the course of one year, most of his patients will consult him for one reason or another, he has a superb opportunity for identifying patients who are at special risk and for picking up asymptomatic disease. In order to apply this method with the greatest economy, he needs the knowledge of risk and of the natural history of disease which clinical epidemiology can give him.

In the strategic method, he applies this knowledge to the whole population of his practice. For example, he may decide to screen all adults between 25 and 65 for hypertension. We have hardly yet begun to apply this method in North America, although it has been used for some years in the United Kingdom, where the National Health Service provided general practitioners with a ready system for defining their practice populations. There is, however, no reason at all why we should not apply the method here. The main obstacle is not one of organization, but one of attitude. Primary physicians have not until recently thought beyond the individual to the population of the practice as a whole. A primary doctor's practice should be regarded as a population at risk, with subgroups who are at special risk and require attention even if they are not at the time attending the physician.

Now I want to describe how we have tried to apply some of these ideas at the University of Western Ontario. When family medicine started there 8 years ago we were one of two divisions in a department of community medicine. The other was epidemiology and preventive medicine. Four years ago we became, by mutual consent, two separate departments. It was an excellent way of introducing a new discipline to the medical school.

Our first tasks were to set up model teaching practices, to develop an information system, to launch an undergraduate teaching program, and to develop the postgraduate program which had been in existence two years. In all these tasks, but particularly in the first two, we were in constant communication with our colleagues in epidemiology.

We confronted the denominator problem and decided to go for a defined population for each of our three model teaching practices. We did this by designing a family data sheet and recording demographic data about every family registering with our

practices. Having done this we set about designing a system for collecting data on every patient encounter in the centers. We now have over a year's data and have been through the laborious process of checking and validating it.[1] Samples of descriptive epidemiology from this data are shown in Appendix I, this chapter.

Although the methods used, and the data obtained, will be of general use and interest, our chief purpose in setting up this system was not research with a big "R." Its chief purpose was educational: to provide staff and residents with continuing feedback about their performance, to give us information about the content of family practice, and to help us to evaluate the work of the practices. It has also, of course, provided data for research, helped us with management decisions and given us a basis for the application of strategic preventive methods.

It is important to emphasize here a point made by Dr. Stokes. The collection of data does not constitute research. Research begins with an idea—a question—followed if necessary by the collection of information. We should not collect large masses of information and expect research to grow miraculously from it. Of course, we must collect data for other reasons—education, audit management—but we must always be clear about our objectives for doing so. Every new discipline begins with a phase of data collecting. In due course, however, this must be followed by the generating of ideas and hypotheses about the data. In primary care we are almost at the end of phase one: our greatest need is not more information but new thinking about the information which is already available.

Research in our department has arisen from questions which we wanted to answer: about the incidence and prevalence of disease in general practice; about the structure and function of the primary health care system; about the natural history of presenting complaints; about the problem-solving strategies used by family physicians; about the efficacy of our practices and our educational programs. A resumé of work in progress is given in Appendix II, this chapter. There are many problems awaiting study by primary physicians, especially in the natural history of disease and the evaluation of therapy.

How can we encourage research in departments of family medicine? I think it is essential that we don't rely entirely on epidemiologists to do the research. It is equally important that research is not seen as something which is carried out by specialized personnel in one corner of the Department. The spirit of inquiry should be something that pervades the whole Department and affects all members of it in some way or another.

In our Department we have one family physician working virtually full time on research on a grant from the Federal Government. We have had two visiting professors—each for 12 months—under the Federal Government visiting scientist program: Dr. D. L. Crombie from Britain and Dr. B. G. Bentsen from Norway. All of these have contributed greatly to the development of our research activities. I believe that our most important achievement, however, is to have so many members of the Department actively engaged in research under the aegis of our research committee.

It is important that funding agencies recognize the need to support people like this in departments of family medicine. The most important thing, however, is not material resources but the intellectual climate. Let us not forget that most of the original work in general practice has been done in Great Britain by working general practitioners with minimal resources (Research Projects by General Practitioners, 1974). Having established a climate favorable to the development of ideas, all a department needs to do is to establish a system by which a creative individual can receive the maximum of support, encouragement and constructive criticism. This is what the marriage of faculties of preventive and family medicine is all about.

[1] The development of the information system was financed by a grant from the Ontario Ministry of Health.

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APPENDIX I

Samples of Descriptive Epidemiology from the Patient System
Department of Family Medicine
University of Western Ontario

TABLE 1. Annual Incidence of New and Recurrent Attacks of Otitis Media Per 1,000 Patients by Each Age Group and Sex

Age	0–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–69	70+	Total
M	276	133	31	20	26	10	9	16	9	0	0	54
F	330	135	62	25	22	14	19	0	13	0	8	51
T	300	134	46	23	23	12	14	7	11	0	5	52

TABLE 2. Average Number of Visits For Each New or Recurrent Attack of Otitis Media by Age Group and Sex

Age	0–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–69	70+	Total
M	2.03	1.64	1.50	1.40	1.88	1.67	3.00	1.00	2.00	0	0	1.84
F	1.57	1.62	1.44	1.44	2.00	1.80	1.14	0.00	4.00	0	3.00	1.66
T	1.80	1.63	1.46	1.43	1.95	1.75	1.70	2.75	3.33	0	3.00	1.74

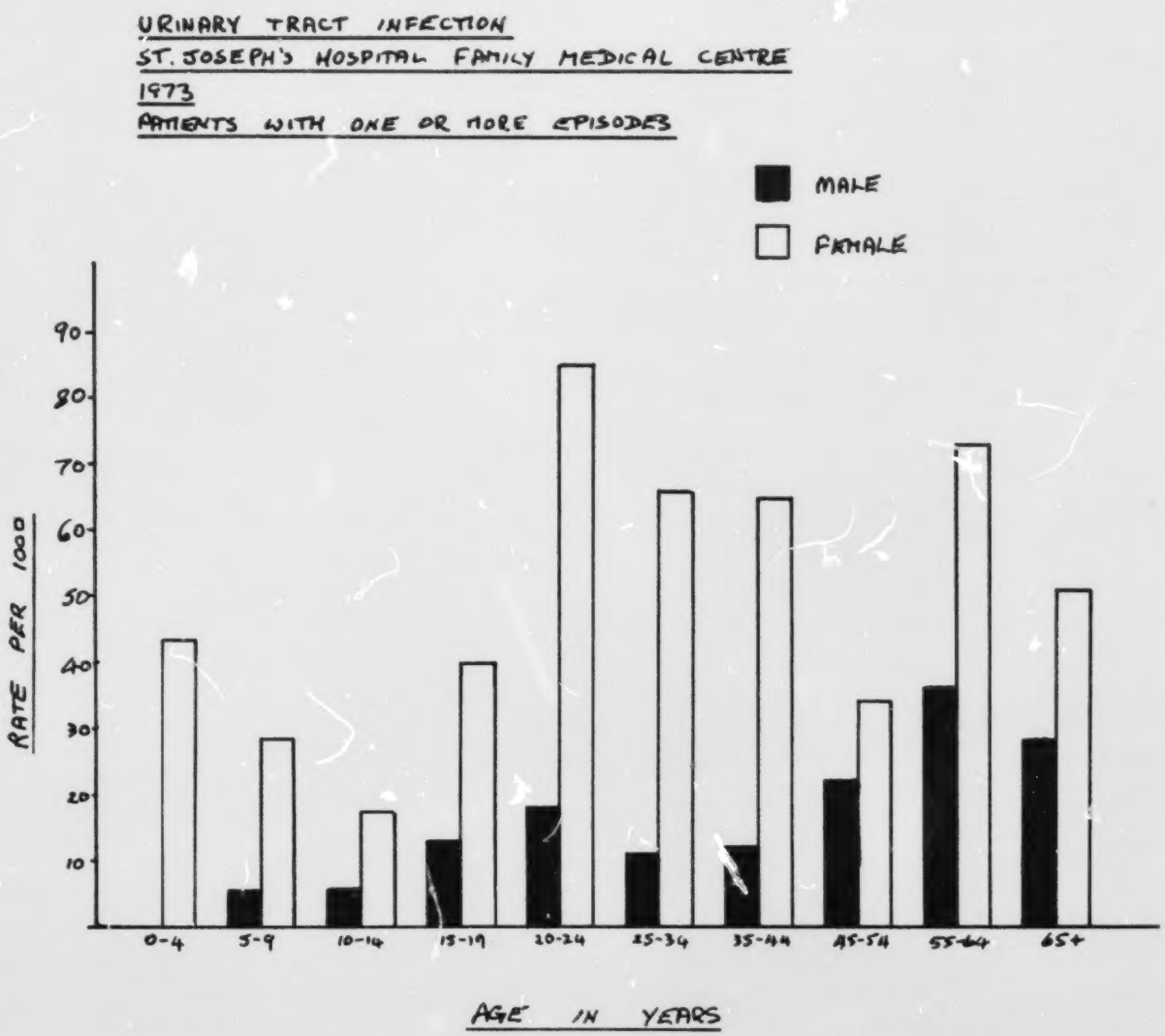

FIGURE 1. Age and Sex Distribution of Patients with Urinary Tract Infections. St. Joseph's Hospital Family Medical Center, 1973. Patients with one or more episodes.

5

APPENDIX II

Department of Family Medicine
University of Western Ontario

Publications and Work in Progress
(completion date in brackets)

1. Research in Progress

Bass, M.J., Newell, J.P., Williams, J., Warren, S. Evaluation of a Rural Health Centre, (1977).

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DISCUSSION

FARLEY: Dr. McWhinney cautioned that we shouldn't get inundated with data except as it provides for some functional practice or research purpose. I would like to emphasize the potential research usefulness of data systematically collected and coded in a large number of family practices. Recently, Evan Charney, in the Pediatrics Department at Rochester, came to us and wanted to do a trial of antibiotic prophylaxis of recurrent otitis media. Within several days, Jack Froom, in Family Medicine, provided him with coded records from a population of 12,000 pediatric patients from which to select cases and controls. They were able to start the study in a week, compared to the months or years and considerable additional funding that would have been required to start *ae novo*.

BERG: To extend beyond the potential for study of disease management and diagnosis, there's an even larger potential for research in the health services or health management aspects of primary care.

FARLEY: Despite these good feelings and a limited amount of demonstrated usefulness of coded primary care data for study purposes, our residents have expressed rightly, a need to get people helping at a high level to use this data.

STOKES: This reminds me of the guy in the department of medicine ten years ago who used to start a study and collect reams of data and then walk in to some unsuspecting statistican and dump the data on his desk and say, "Analyze it." That was bad news then and it will be bad news all over if family medicine collects reams of encounter form data and then hauls it down to preventive medicine and puts it on the desk and says, "Analyze it."

This hopefully can be avoided by developing appropriate study design, data management or expertise from within the ranks of family medicine. I am thinking of a breed of individuals who are fully conversant with family medicine, who go through a family medicine residency, and then spend at least a year, maybe two or three, working in a particular discipline such as health services research, and then come back as full-time academicians in the departments of family medicine to teach, to serve, and above all, to guide research. That breed is sadly needed.

SMITH: You describe a person who's going to have his foot in both camps as the appropriate individual to guide us in the collection and use of data, etc. The question is where such persons might best be educated for this role, and how this education might be funded. Specifically, should this occur in private institutions whose trustees might not be particularly forward-looking, or at publicly-supported medical centers where the State, in assuming responsibility for public needs, would be supportive of such a program, or would the education be based in actual primary care practices in the community?

KISSICK: The distinction between private and public institutions in higher education is evaporating at a very rapid pace. I'm on the faculty of a private institution, but we've been told that if the public cork is pulled, we go down the tube. So the decision process is going to be very similar.

I'd just like to toss out what is one of the most fascinating things about the British National Health Service, which claims that the family physician is the backbone of the service. The family physician is *de facto* the backbone of the service, although the status and the income goes to the consultant who is the specialist. But when you examine their budget, what they have done and are doing is providing 80 percent of their health care with 12 percent of the budget.

One of the things that will really sell family medicine, in our society, including the kind of postgraduate education being discussed, is cost effectiveness. It's a more cost effective way of providing primary care and preventive care, within certain limitations, than what we've got presently. I think politicians have that message. I'm not sure the rest of us do.

SCUTCHFIELD: Traditionally, the university health science center, be it private or publicly supported, has the resources for research to build the intellectual background that Drs. Stokes and McWhinney have appropriately pointed out. I'm sure that would be the primary mechanism.

Accordingly, I would hope that, if in fact there is some strong commitment to family medicine at the national and State level, there would be the commitment of resources for university-based research in just the kinds of things that are being discussed. But I think there's a further point to be made, and

that is that some of the most fascinating research has been done by a family physician with his record system (e.g., the work of Fry and Pickles in England).

Since the focus of research is likely to continue at the university center, it doesn't preclude the family physician from obtaining research capability in his residency training so that he will carry it on in his practice.

COMMUNITY AND SOCIAL MEDICINE IN PRIMARY CARE

Leslie A. Falk and
F. Douglas Scutchfield

INTRODUCTION

This paper first identifies some major streams that are important in the consideration of the relationships between community/social medicine and primary care. These streams are: ongoing relationships between community and social medicine and traditional primary care providers, the emergence of the health care team and of the consumer movement in health care.

Professional Streams

The primary care physician represents "first contact" with the patient or the family. The disciplines currently most thought of as providing primary care are internal medicine, pediatrics and family medicine.

The traditional educational stream of internal medicine is based on in-hospital care as its model. Although prior antipathy existed between internal medicine and community medicine, many internists now consider that community medicine is one of its sub- (or super-) specialties. "Comprehensive care" (Falk, 1972) has become an important viewpoint of many internists. These internists adopted (in the 1950's) dimensions of comprehensive care that are preventive and rehabilitative in nature as well as curative; they discovered streams of preventive and social medicine, and incorporated them into clinical practice. Among these dimensions are epidemiology, home care, medical care organization and health administration. While this identification is occurring in internal medicine, the words in the Internal Medicine Specialty Board "Essentials" still do not reflect this.

Pediatrics (Goldman, 1945) has been the most preventive and social-minded of the traditional specialties, feeling relatively comfortable with public health, e.g., well-baby, school health and crippled childrens' programs. It has emphasized normal growth and development, nutrition, primary protection against infectious diseases through immunizations, and maternal child-rearing education. Relatively modest fees and total income levels, plus boredom in the health maintenance and counseling role prompted a precipitous decline in pediatric resident recruitment about a decade ago. The pediatricians then led the traditional specialities in fostering the expanded nurse role, the nurse practitioner, recognizing her independent care possibilities but asking that she join the pediatrician in a "team" to provide care to patients (H. Silver et al., 1968).

Family medicine (AAGP, 1968) has recently taken its place as a speciality, the speciality of the generalist, requiring the same length of residency training as medicine and pediatrics (i.e., three years). It has acquired a high consciousness of role and mission. The Society of Teachers of Family Medicine has identified special viewpoints and skills considered to be uniquely feasible for this speciality; many of these are at the preventive, family, and social levels. Both the Society of Teachers of Family Medicine and the American Academy of Family Practice demand equal status for family medicine with other recognized medical specialties, and want medical school and hospital department status. However, they have been tolerant of the rather large number of medical school Departments of Family and Community Health, which handle both subjects, attempting to integrate them, especially at the medical student level. Different tracks are necessary to achieve approval for the respective specialty boards at the residency level.

Many of the social and humanitarian concerns (Wolfe and Badgley, 1972) which previously had led medical students and young graduates into social, preventive, and community medicine are now clearly evident in family medicine circles. Family medicine approval bodies require that all persons of the family, of whatever age, be eligible to come to the family doctor. They stress continuity of care over months and years. A "Model Family Practice Unit—MFPU" is required as a teaching base. The family medicine faculty emphasizes long term continuity of family care. The interdisciplinary care family health team

usually includes the nurse, health workers and sometimes the social worker and dental team, though these are usually at the secondary level. The two major variants are: a private practice with a small group of family doctors, or a comprehensive health center with family health teams providing extensive consultation and referral personnel and services under the same roof.

The resident in family medicine begins to acquire families and patients slowly, but by the third year of the residency must handle a heavy office load, plus following patients in the hospital under decreased supervision as preparation to enter independent practice.

Thus, community medicine now has known relatively congenial ways of entry into primary care education in the three main specialties of pediatrics, internal medicine and family medicine. New patterns will undoubtedly emerge, e.g., relating to obstetrics and gynecology.

The Health Care Team

We should note an important trend in primary care delivery. Increasingly, the primary care physician assumes a participating, coordinating or managing role with nonphysician providers of health care. That is, the primary care physician, in the office, may be directing the care of patients by a nurse practitioner, a physician's assistant, a certified nurse midwife, a family health worker and others. The provider may also be coordinating the care the patient receives through referral to other primary care providers in the community, such as a public health nurse. This trend toward a primary health care team seems to enable improved quality and comprehensiveness of the care received by the patient and the family. Given this growing fact, it is necessary for us to begin to think of the "primary care team" or "family health team" and their education, and to begin to examine the "core" knowledge that is necessary to provide primary care, regardless of the disciplines of the provider. So, the reader must realize that while we are discussing the primary care physician, many of the points that are made here have applicability to disciplines in addition to medicine, and should be considered in the education of the primary care team, hopefully in an interdisciplinary, "same time, same place" manner. Knowledge, attitudes and skills in patient care and in working together really require concurrent education. Mutual agreement on goals of the team must come first. Then, repeated clarification of roles, differences and overlap, is desirable. Leadership functions may shift, depending on the problem and who knows most about possible answers. Decisionmaking responsibilities and processes must be agreed upon. Communications must be clear, and a matter for continuous effort. Evaluation of successes and failures should then lead into a new cycle for changes to improve health care.

Consumer Stream

A community (Wolfe, 1971) and a consumer stream have occurred simultaneously (Falk, 1975). Nationally, there is increasing dissatisfaction with the U.S. health care delivery and payment system, as a portion of what is called the "crisis in health care." Much of the dissatisfaction stems from the fragmentation of health care. The patient wants and needs a person to whom he can relate for the majority of his illnesses, to help him maintain his health, to serve as a health advocate, to guide him through the superspecialty services, to help put the pieces together, and to explain his illness and what is being done about it. The patient wants someone with the ability to counsel, to guide in the stresses of daily living. As practice became a series of specialties, most physicians seemed unwilling to make a home call or to be on duty nights and weekends. Hospital emergency rooms became the only resource for many (Weinerman, 1966).

At one time even group practices and group health plans projected values the patients could not accept, e.g., "the personal doctor-patient relationship is a myth; a good team of specialists can give better quality care" (Weinerman, 1964). But patients cling to the dwindling supply of "general practitioners" as "my doctor." Fortunately, some perceptive and honest thinkers identified this flaw in such health care delivery systems and stressed the values of the personal physician and personal nurse, and of the importance of continuity of medical care (Weinerman, 1968).

Socially concerned medical students, as well as consumers, became aware of these needs, an awareness which prompted many students to veer from laboratory research and the ultrascientific sophistication of the superspecialties back to the primary concern of the prototypic personal physician, the concern for the patient as a person, family and community member.

The consumerism flame then blew white-hot under

the wind of the Black Revolution in the United States (Madison, 1969). Civil disobedience and social struggle swept away publicly legal discrimination, as the needs of the poor and deprived found a voice. The "Right to Health and to Health Care" erupted as a demand and a Federal legislative response resulted. The Economic Opportunity Act, as amended in 1968, enabled development of many dozens of neighborhood health centers. These grew into the hundreds as Section 314–E of the Comprehensive Health Planning Act of 1966 (PL 89–749) enabled demonstrations in health delivery and payment. Funding of the OEO-sponsored centers was then unified with that of the 314–E developments, and administered by the Department of Health, Education and Welfare. The comprehensiveness of benefits has been broad, tending to include medical, dental, social, nutritional, pharmaceutical, transportation and even legal services. These neighborhood health centers, family health care plans and "storefront clinics," involved "maximum feasible participation" or "control" by organized lay representatives of the community in their policy, broad planning, and evaluation.

As rural areas became increasingly deprived of any physicians (Nolan and Schwartz, 1973) rural legislators responding to needs of their constituents began to demand that public funds be used to enable farm boys and girls to become family practitioners, hoping to attract them to return to the community from which they came. These legislators began to provide resources, and even to mandate the direction of medical education of State medical schools. For example, some legislatures have required departments of family medicine in their State-supported medical schools. Federal appropriations for family practice education increased only a bit later.

With the increasing public demand for improved primary health services and support for education of primary care providers, it seems necessary that the academic medical community be responsive to these developments. One means of support is providing the field of family medicine with relevant bodies of knowledge. In developing warm relationships, community medicine should lead the way.

COMMUNITY MEDICINE IN PRIMARY CARE

We will deal with only four areas of community/social medicine; (1) epidemiology and biostatistics, (2) cultural-behavioral sciences, (3) environmental-occupational health, and (4) health administration and medical care. There are other areas in community and social medicine with relevance to primary care.

The ensuing discussion will center on broad goal statements and some objectives for educational activities, and evaluation methods.

Epidemiology and Biostatistics

Epidemiology may be defined as the study of distribution and determinants of disease within a population group. We broaden this definition to include the determinants and distribution of health within the population. Epidemiology and biostatistics form two of the basic sciences for community/social medicine. Their knowledge is important for primary care practitioners.

In order to define the role of epidemiology in primary care we should first examine the relatively unique position of the primary care physician in health care and endeavor to see how he can use this position.

The primary care physician is responsible for continuity of care, and for that reason, he usually has a well-defined group of patients who look to him for maintenance of health and treatment of their illnesses. If he assumes this role, there is a clear-cut delineation of the group he serves. From an epidemiologic point of view, this constitutes a fairly accurate denominator. Because the family and its members receive care or have their care directed by the family physician, it is possible for the physician to observe the patient and the family over extended periods of time (Group Health Insurance of New York, 1963). This allows him to observe the complete natural history of a disease from the exposure of the at-risk patient to the resolution of illness. The primary care physician is unique among health providers also, in that he has the responsibility for the maintenance of health in his population as well as the treatment of its diseases. One of the keystones of prevention is epidemiology. Health hazard appraisal in patient care arises directly from it (Sadusk and Robbins, 1966).

A characteristic of the primary physician is his necessary concern with the resources of his community. His patients are obviously influenced by their work and living environments, by their physical and by their cultural milieu. The health of the patients likewise influences the health of the community. Thus, community resources may be brought to bear on the patient or his family, either to assist in

maintenance of their health or in remedying their disease. Likewise, these community resources may be inordinately consumed by the over-burdened families if health maintenance lags.

Given this relatively unique and pivotal responsibility, the primary care physician needs accurate data. Only with effective records and data organization is it possible for the physician to maximize his capacity to deal with the patient, family, and the community. Useful tools for collecting such data include the problem-oriented record, special registries by disease, age and place of residence, plus service and cost reports. How does this relate to epidemiology?

Morris (1964) has identified several uses of epidemiology, and we have taken those that relate directly to family medicine as a key for our discussion.

> *To diagnose the health of the community, and the condition of the people, to measure the present dimensions and distribution of ill-health in terms of incidence, prevalence, and mortality; to define health problems for community action, and their relative importance and priority; to identify vulnerable groups needing special protection. Ways of life change, and with them so do community health and health problems; new indices of health and disease must, therefore, always be sought. (Morris, 1964)*

The patient's health will be influenced by the community, and the community's health will be affected by the health of the patient.

The community must have resources to bring to bear on the diseased patient. The primary physician has the capacity and responsibility to develop community programs which will assist in the care of the patients. He can also serve a surveillance function to pinpoint epidemic or endemic diseases in his community. By maintaining adequate records, he should be in the position to recognize correctable community health hazards which create illness in his patient population.

> *To study the ways health services work, with a view to their improvement. Health services research translates knowledge of community health in terms of needs and demand. The supply of services is described and how they are utilized; their success in reaching standards and in improving health needs to be appraised. (Morris, 1964)*

The primary care physician must know the range of community health services available to his population and be prepared to use these effectively in his own practice; he should know the relative merits of these prior to assuming a practice responsibility. He should be able to evaluate his current organizational and administrative practice decisions and alter them to meet the needs of his patients and his community. He should also be committed to evaluation of his performance in providing care to his patients and in examining the effectiveness of that care. These efforts will lead to definition of performance deficiencies, which will then become the educational objectives for the family physician's continuing education. This seems best done in organized local settings such as in hospital medical staffs and in group practices. Peer review methods for quality, utilization and efficiency are extremely important to the practicing family physician.

> *To search for causes of health and disease by studying the incidence in different groups, defined in terms of their composition, their inheritance and experience, their behavior and environment, describe their patterns, and estimate the relative importance of different causes in multiple etiology; to investigate the mode of operation of the various causes. With knowledge of causes comes the possibility of preventing the incidence of disease. Postulated causes will often be tested in naturally occurring experiments of opportunity, and sometimes by planned experiments of opportunity, and sometimes by planned experiments in removing them. (Morris, 1964)*

The primary physician can become involved in a variety of studies of the determinants or distributions of diseases as well as health services. There are excellent illustrations of research by primary care physicians with inquiring minds and effective record systems in Britain, Canada and the United States (Wolfe and Badgley, 1972). In our opinion, primary care might well concern itself with that research which has as its goals improved family health maintenance, preventive and self-care effects, improved methods of patient care, improved office functions and procedures, and steadily increasing levels of primary health team proficiency and efficiency. One prototype is that of comparative ef-

fectiveness of different primary care systems (Hulka and Cassel, 1973).

Culture and Behavioral (Social) Sciences

Culture is the "totality of socially transmitted behavior patterns, beliefs, institutions and all other products of human work and thought characteristics of a community or population" (American Heritage Dictionary, 1969). While not unique to community medicine, we consider behavioral science as a basic discipline in the field, especially at the social group level. It provides insight into (1) attitudes, beliefs, and actions involved in obtaining personal health care, (2) interactions between family members, and (3) the occurrence of disease as related to a culture, e.g., diseases of civilization. The primary physician must "face the real and total problem" of the patient (American Academy of Family Practice, 1965). This involves the sociocultural aspects of the patient as well as the clinical aspects. An awareness of the differences in behavioral patterns, work and thought processes among different socioeconomic groups is important.

The poor constitute a subculture within the broader United States culture. They have an entirely distinctive set of behavioral patterns. These patterns have positive as well as negative aspects, as they enable the poor to survive in society. These patterns are: (1) orientation to the present, (2) concreteness, including the hourly struggle for food, clothes, and housing, (3) "authoritarianism" (according to this source), and (4) "fatalism." These characteristics, in addition to lack of income, obviously influence their pattern of use of the health care system (Young, 1964).

The rural middle class differs in its health-related behavior from the urban middle class. Patterns of behavior influence the use of personal health services and the character of that use.

Cultures differ in their perception of illness. For example, hookworm disease in the South around the turn of the century was so prevalent as to not be considered an illness, (Pettigrew, 1964). This cultural difference is also true in the willingness of a population to "assume the sick role." Cultures differ in how they handle pregnancy, whether or not it is considered an illness," and how the pregnant woman responds to labor. Perception of illness and assumption of the sick role relate to the seeking of medical care, providing it is financially and physically available. If an individual does not perceive a life situation as an illness, he usually will not consult a member of the health care system (Karl and Cobb, 1966).

Even after an illness is perceived, the nature of the person consulted differs within cultures. The poor more frequently consult friends, family and folk healers first. If further care is necessary, they then seek that professional whom they consider the least higher class or expensive, for example, a local pharmacist or a practical nurse, rather than a physician (Bane, 1963). Minority group health belief systems may be strikingly different from those of health care providers. A lack of perception of this by the physician, nurse and other health personnel will interfere with compliance in professionally prescribed regimens. This takes the form of lapsing with medication and "not following physicians' orders." It may also take the form of "shopping" for health care in different systems or seeking episodic care. Among Latin-Americans the "hot-cold" theory must be adhered to.

The physician, while treating the patient, certainly exerts influence on behavior patterns of the family. The family also influences the care the patient receives. Family factors which are important to the care of patients include such things as the stability of the family unit, the extent of emotional support in time of stress or illness, and the responsibilities and perception of the child-rearing process. Thus, the family physician must know the family environment in undertaking the care of the individual, since he is also assuming the responsibility for the family, its care, and its ability to cope with the illness of one of its members.

The understanding of cultural influences on the patterns of disease is another facet of the relationship of social science to health care. The shift in mortality rates from predominantly infectious to predominantly chronic disease in the United States occurred earlier in urban than in rural populations. Our current way of life has resulted in the emergence of a new set of diseases known as the "diseases of civilization." They are attributable to shifts in life style, including diet, the automobile, changes in the workplace and environmental pollution (Esposito, 1970). The role of social disorganization as a precursor to a variety of diseases is becoming increasingly apparent (Cassel, 1974).

In order to maximize his potential to affect the health status of his patients, families, and commu-

nity, the primary physician needs a working knowledge of these sociocultural influences on health and illness. A reservoir of knowledge in these areas (as well as other bodies of knowledge of relevance to the physician) lies in the department of community medicine. It seems imperative that the student in the undergraduate curriculum, as well as the physician in postgraduate training, be made aware of these issues and their relevance to primary care practice.

Medical sociology, social psychology, medical anthropology and other aspects of the social and behavioral sciences are now considered part of a core student curriculum and of the family practice residency. We urge the scientists and teachers of the behavioral sciences to work more often in primary care settings, so they are able to base their pedagogy on relevant experiences.

Environmental and Occupational Health

Major types of environments include: work, home, community, physical, and sociocultural. Accidents within the home, on the roads, and at work are major causes of mortality and disability for a large portion in our younger age groups (Falk, 1974). The primary physician must assume the responsibility for attempting along with the family, labor, management and public officials to develop preventive measures to reduce accidents.

He must be able to recognize work-related diseases, which he is likely to see in practice, yet often misses due to lack of awareness of the problem. He should assume an active role in working with industry to prevent these occupationally related illnesses.

Occupational medicine attempts to maintain the health of the worker, to prevent disease when possible, and to cure it promptly when it is not prevented. It attempts to rehabilitate through a focus on recovery of function when lost. Health counseling and health maintenance are today's goals in occupational health.

Taking a good occupational history is a basic skill needed in primary care. What specifically does the worker do in his or her work, and what were previous exposures? This requires some knowledge of toxic substances commonly encountered in the work environment (dusts, chlorine compounds, etc.), health hazards from excessive noise, accident hazards due to exposed machinery. Visiting the place of work to observe likely work hazards is invaluable.

Resources available from health and labor departments should be familiar to primary care practitioners. What is OSHA (The Occupational Safety and Health Act of 1970)? What does it require of all employers in protecting their employees . . . one's patients? What is the Workman's Compensation Law in one's State? Does it allow a primary care physician to see his patient when industrially sick and injured, or does it require the patient to see a "company doctor"? What are "Black Lung Benefits"? What are specific Social Security benefits? Does the primary care physician know about and refer to the vocational rehabilitation service or to other special services (for the blind, deaf, epileptic) to habilitate or rehabilitate?

Each technical advance has tended to produce its own occupational and environmental problems. Physicians using X-ray were an early example (Codman, 1902). Fifty years ago, radioactivity appeared as a killer of fluorescent wristwatch workers who were painting luminous dials (Martland, 1929). Other forms of radiation exposures became a prototype of the interrelationship between the work and the community environment. Even substances used for many years have not been adequately tamed, e.g., asbestos and lead, the former now a malignant giant.

Occupational medicine stresses the preventive and educational as well as the compulsory and the legal. Health examinations and health counseling are at the heart of the best industrial medical departments' activities. Physicians, nurses, and industrial hygienists are often the core industrial health team. Safety engineering is a key aspect of accident prevention. Psychological testing, counseling and industrial psychiatry should be understood, including their biases. All these, once again, must start with the medical, nursing, and other health students and housestaffs.

The environment of almost the entire United States population is now threatened by the industrial wastes and personal machines (e.g., autos) which pollute our air, water, food and drink. Occupational medicine now inevitably combines with environmental medicine. Whether it be at the work place or in the neighborhood environment, the hazards are synergistic.

Air pollution, noise pollution, water and soil pollution—all the aspects of the living environment which had been thought to be improved or improving are now threatened or already polluted. Ecology as a discipline and viewpoint of the whole and the interdependence of all, should be viewed as a base

discipline the primary care physician attempts to understand.

The primary physician is in a unique position to recognize the health consequences of environmental pollution and poor sanitation in his community. He should assume an advocacy role within the community to correct those conditions which produce illness in his patients and attempt to prevent future illness. This advocacy role requires an understanding of the political-social process, and how to alter this process for change.

Health Administration and Medical Care

Health administration and medical care are two phrases for a sphere of activity without an accepted short title. Health care delivery, health care organization, health planning, and community health services are either components of these phrases or used synonymously with them. Health services research is the key investigative field of this core subject. Cognitive knowledge in these fields draws heavily from the disciplines of administration, economics, communications, political science, social welfare, history and ethics, among others.

The primary care physician needs to acquire some of the skills of the health administrator himself. Examples of such skills include: How to organize and run an office and/or complex health care delivery service, e.g., understanding laws applying to employees, personnel practices and fiscal affairs; or planning and evaluating the services. Complex health care delivery systems such as hospitals, university health science centers, large group practices, nursing homes, comprehensive health centers and health departments are almost certainly to be within the responsibilities of many primary care physicians.

The basic methods of financing of health care and the advantages and disadvantages of each must be known. This involves understanding health insurance—social insurance, such as Medicare; private nonprofit, such as Blue Cross-Blue Shield; and commercial insurance, or a country's National Health Service.

Familiarity with standards for quality, comprehensive care, efficacy, efficiency, accessibility and how they are applied must be understood. PSRO's (Professional Standards Review Organizations) represent a major case in point in the contemporary American medical practice. There must also be familiarity with public medical services such as Medicaid, county medically indigent systems, the Veterans Administration health care program, special eligibles such as Indians (native American), and the Armed Forces members and their families.

Understanding the interrelation between organization and the financing of health care delivery and their disparateness is necessary. There must be familiarity on a day-to-day level with health planning and its relationship to organizations in Comprehensive Health Planning and Regional Medical Programs within the health care system, such as a hospital or a neighborhood health center.

Part-time and field health administrators are particularly valuable as faculty members to provide information to medical students and residents on those subjects. Health services research personnel can also provide relevant information about these areas. Both can be drawn into faculty development activities at the residency level. Residents can be assigned to planning, developing and evaluating a health care delivery system as part of their core time.

CONCLUSION

The primary care physician, whether internist, pediatrician, or family practitioner, is in a unique position to improve the health status of his patients, families, and the community in which he works if he has the skills, the attitudes, the appropriate health care team, and community system. Medical education needs to provide learning opportunities to develop such physicians. Society is demanding this loudly and clearly.

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INVITED DISCUSSION

F. Douglas Scutchfield

Prior to making any formal remarks about the manuscript prepared by Dr. Falk and myself, I would like to comment on a trend which is relevant to primary care education. In my discussion I assume Family Medicine is the leading speciality involved in primary care, but recognize that other specialities have and desire a role in primary care.

This trend is to combine departments of family and community medicine. We must recognize that family and community medicine are two separate and distinct disciplines. The focus of community medicine is the community, an aggregate of individuals and families; the focus of family medicine is the family and its members. The base sciences of community medicine include epidemiology, biostatistics, behavioral science, operations research and economics. These are all disciplines which deal with attempts to explain and modify group behavior. The base sciences of family medicine are clinical in nature, pediatrics, internal medicine, psychiatry and the like. These focus on the individual patient, not on the aggregate. The family, the unit of family medicine, represents a good meeting ground for those two disciplines, and the comments in our manuscript illustrate common concerns and relevant information that community medicine has for primary care education.

As practitioners and researchers of community medicine, we are aware of and supportive of the need for effective primary care. Primary care represents the "crunch" in health care as illustrated in the paradigm generated by Kerr White in *Ecology of Medical Care* (1961). In this paradigm White points out that of 1,000 patients during a month, 750 will report an illness, 250 seek physician care and only 9 are admitted to the hospital. While this is true, our medicine educational system currently focuses on the 9 hospital patients and attempts to produce individuals exquisitely trained to provide this care. This educational emphasis is in part responsible for the declining numbers of primary care physicians who are necessary to care for the 241 patients who consulted a physician but were not admitted to the hospital. This awareness prompted many departments of community medicine to launch primary health care programs, such as the neighborhood health centers. These concerns of community medicine also allowed it to be strongly supportive of and to participate in the development of the family medicine educational experiences within medical schools. Perhaps community medicine's outspoken supportive role of family medicine prompted our colleagues within the medical center to identify family medicine as a "portion" of community medicine.

I personally believe that this trend identified by our medical education colleagues is not, in the long run, productive either for family medicine or community medicine. Each discipline should be recognized as a distinct entity within the sphere of medical education and these two disciplines should jointly demonstrate the relevancy, priority and necessity for primary care delivery in an organized context. I am not absolutely opposed to joint departments of community and family medicine. In those institutions with a strong community medicine department, it well might serve both community medicine and family medicine to allow the departments of community medicine to "incubate" family medicine, but we should, as soon as possible, spinoff this department to assume its place on an equal footing among other departments of the medical school.

It is appropriate for us to not lose the opportunity to work with the other clinical departments in our rush to implement and support the family practice movement. We must recognize that one of the major responsibilities of the department of community medicine is to create, develop and evaluate community health programs. These programs will not only be used by family physicians, but also by other primary care specialists, as well as secondary and tertiary care physicians.

It seems reasonable to suggest that because of their concurrent goals, comprehensive and continuing care, family medicine and community medicine can work effectively as two separate departments to obtain a voice in policy decisions in medical schools. Both departments currently have little input into policymaking. Perhaps two departments would have a greater voice than one department with two units. The departments must work together in order to

obtain those trappings of influence which are appropriate in medical education circles. These areas include: 1) Inpatient beds in university hospitals. Family medicine should not be looked upon as second-class medicine which can only be practiced in the community hospital. 2) Curriculum time. Community medicine has been traditionally short in terms of curriculum time. The same thing is now happening to our family practice colleagues. 3) Appointments to policymaking committees. The two departments should work together to obtain appointments to policymaking committees, such as the curriculum committee, the promotions, appointments, and tenure committee, and the like. 4) Financial resources. Possibly the most important source of power and influence in the medical education community has to do with getting resources for faculty and residents' salaries. These resources allow for the growth of an adequately-sized department to assume responsibility for this valuable portion of the medical education program.

Recognizing that there is a difference between family medicine and community medicine, what is common ground between the two disciplines? Our manuscript identifies some of these, such as epidemiology, biostatistics, sociocultural knowledge and health care organization. The overlaps can be further defined through the mechanism of behavioral objectives. The University of Washington Department of Family Medicine has identified "Competency-Based Objectives for the Family Physician" (Baker, et al., 1974). We in community medicine should likewise identify the competency-based objectives of community medicine. Where overlap exists between these two sets of behavioral objectives, there is an obvious field for common education of undergraduate students and residents.

Another important contribution that we in community medicine can make to family medicine is the use of community diagnosis. All physicians, regardless of speciality or location, practice in a community. This occurs whether an individual is a neurosurgeon in downtown Manhattan, or a family physician in Wolfe County, Kentucky. At the University of Kentucky every undergraduate medical student learns how to do a community diagnosis. We require all students during their junior year of medical school to spend five weeks in one of the fifteen governmental planning regions in the State of Kentucky. They work in groups of five with a faculty preceptor. During this time, students do a community diagnosis, as originally described by McGavran (1956). They view community health problems as a physician views individual health problems. Therefore, we ask the student to take a history and obtain chief complaints from various people within the community and have them identify the community's health problems. The student examines objective data to confirm or deny the impressions he has received from the history. He then formulates a problem list composed, in priority rank, of those community health problems which he has identified. Some of the problem lists generated by this process appear elsewhere (Scutchfield, 1974). We anticipate that the use of this knowledge in the community will seem self-evident to the student, and anticipate that when the student enters practice, he will do a community diagnosis of the community in which he chooses to practice. From this we hope that he will serve as a leader in developing programs to speak to the problems he has identified in his community.

We have spoken briefly about the identification of high risk cohorts of patients in the family physician's practice as a mechanism for preventing and resolving those problems. Identifying these cohorts involves a knowledge of epidemiology and the practical use of office records as an epidemiological tool. We also feel that community medicine can make important contributions to practice management by the family physician. By using the epidemiological and biostatistical tools which community medicine has available, it would be possible for the family physician to evaluate his practice for efficiency, effectiveness, and quality. We know that the physician in the community will assume leadership roles by his position on county boards of health, medical staffs, comprehensive health planning councils, and other advisory and policymaking groups. In working with physicians in the community to develop community health programs, the University of Kentucky graduate has been extremely easy for us to work with, as he has a grasp of the needs of his community. We hope that the broad aggregate of disciplines in community medicine will allow him to effectively serve in this capacity in the community.

Let me conclude by making one additional comment. The patient in community medicine is the community, and the patient in family medicine is the family. Just as in family medicine we would not think of teaching the precepts of family medicine without having a family to practice on, so we should not think of teaching community medicine without

having a community to practice on. We in the Department of Community Medicine have a responsibility to take a proactive role in working with communities to identify the community health problems and to assist them in the development of solutions to those problems. When we assume this responsibility we will see two things: recognition from our students and fellow faculty members, and the valuable contribution we have to make to primary care education.

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DISCUSSION

STOKES: If the departments of preventive, community, social medicine are not going to directly provide primary care service, as you suggest, what indeed are they going to do in terms of service?

I'm not talking about teaching or research; I'm talking about services for which one feels responsible either to an individual or collective group of patients.

SCUTCHFIELD: The continuing service responsibility of the community-social-preventive medicine professor is to deal with communities. Let's say I went into a community, as I have in the past, in rural Appalachia, and the most pressing obvious need was personal health service. Rather than assuming direct responsibility for health services, departments of preventive/community medicine can help the community develop an organization which identifies health service needs, and gives alternative approaches to these needs (e.g., family practitioner, nurse practitioner, multispecialty, etc. models). They can also help in obtaining necessary funds to implement the model selected.

If family medicine is the best clinical department to deliver primary care, and if the family physician fits into the primary care team, obviously this is the department most closely associated with communities in developing health services.

ABRAMS: What you are doing is laying down a blueprint: No, we don't give direct health service but we do it this way, No, we shouldn't combine departments but separate them for reasons which you justified. On the other hand, the rest of your argument justified keeping them together. It is unproductive to delimit our discussion to such administrative dictates. Our basic purpose is the bringing of preventive/community medicine to primary care. There are many approaches to this—what's true in Kentucky may not be true in Arizona. To illustrate —when I joined the University of Arizona, it was a department of community medicine, and family practice was a little bit distant at that point. My first job was to get money from the Federal Government to develop a neighborhood health center. Community medicine was going to be medicine delivered in the community.

What did we do? We got the money and developed a neighborhood health center, the format of which was to provide family health care with family health teams. That subsequently became the basis for our family medicine program. Now, five years later, we are spinning it off into the community. We have decided that we're not going to operate a health service forever, but we did have to operate it for a short time. You see, there are so many ways of doing this.

CHRISTIAN: Dr. Scutchfield is saying to a family practitioner, "We'll organize you, and we'll plan you, and we'll set up and supervise you." For any community health service to be effective, all the elements have to be concerned with the planning, including the family physician. He has to be at the top, helping to plan the service in which he is going to work. Somebody can't just come in, plan a service system, and spin it off to him.

SCUTCHFIELD: That's a misunderstanding. If I gave that impression I apologize. All provider, as well as consumer components, should be involved in the initial planning, but the departments of community medicine should have the primary responsibility for working with the community because they are the most informed about health administration and health care organization.

The primary responsibility then is patient care. Now, you obviously need to be involved in planning those services which will be directly related to patient care.

HENDERSON: Listening to the discussion, I'm struck by certain similarities between communities and patients. We have to remember that one of the important things about serving the needs of patients is getting the patients to come to see us in the first place. Likewise, one of the important things about dealing with communities is getting the community to come to see you.

One of the commonest health problems presented by a community in this day and age is a perceived need for family doctors. Maybe this is a correct identification of the problem, maybe not, but like a complaint which brings the patient to the physician, it may not be near the entire picture of the problem. It is here that combined resources of community and family medicine departments must be brought to bear to arrive at a solution.

ABRAMS: I'm glad you mentioned it because we're in that very situation now. Communities are coming to us. How are we meeting their needs through the family practice program?

WALKER: This discussion has brought out a very important point about the way community medicine departments can successfully serve community needs. The term "community diagnosis" implies a professional service in response to an expressed need. That need may be for primary care practitioners, and if so, they must inevitably be involved in the diagnostic and the therapeutic processes. Thus, we are talking about a kind of research or study process which by its nature should bring about needed change. And by its nature the process will be dependent upon close working relations between community representatives, community medicine consultants, and primary care providers. The important role of the community itself initiating the process, through expression of need, and being actively involved in the analysis and solution, should not be forgotten.

DELIVERY SYSTEM ASPECTS

The final section addresses the broad issue of the milieu of primary health services of the future—organizational, managerial and, most critically, financial models. While not restricted to the matter of preventive/community aspects of primary care, this question of future milieu is perforce directly relevant to the implementation of all which is presented in the preceding sections.

Dr. Gibson reviews three movements which have arisen during the past decade to challenge the failure of the Flexnerian hospital to educate and motivate an adequate number of primary care physicians: Family Practice, Community Medicine and Health Maintenance Organizations. The paper asserts that as primary care grows it will become increasingly organized into rational delivery models, and there will in turn be a pressing need for a new type of health service administrator; the special attributes required of such administrators are detailed. In the invited discussion, Dr. Kissick first examines the depth and/or direction of analyses of certain points presented in Dr. Gibson's paper. Specifically he focuses upon the future usefulness of the concepts of Family Medicine and Community Medicine that are presented and the question of what are or will be the major forces which reshape our health care system. He agrees with the need for a new type of primary care administrator or manager, and briefly describes training programs for such persons at the University of Pennsylvania. General discussion considers, respectively the roles of medical education, consumerism and financing mechanisms, public and private, in changing the health services delivery system.

6

FUTURE ORGANIZATION AND MANAGEMENT OF PRIMARY HEALTH CARE

Count D. Gibson

Introduction

For this paper, primary health care is defined as an organized delivery system that accepts responsibility to care for all the residents of a defined community who wish to use its services. This system attempts to protect and increase the health of its clients, identify presymptomatic problems, diagnose and treat those diseases within its competence, refer patients to more specialized services when required, receive back those who have been referred, help hasten recovery, retard disability, and comfort the dying. Ideally, the system studies the relationship of its constituents to the physical, emotional, and social environment in which they live and the degree to which relationships with their community, employer, family, and peers affect their health.

The physician is the central figure in this institution. This discussion will focus on research and physician education in primary care and not deal specifically with other health professionals—nurses, dentists, podiatrists, pharmacists, social workers, et al., who also play crucial roles in primary health care.

PAST AND PRESENT PRIMARY CARE TRENDS

The discipline of primary health care has only recently received organized attention in American medical school curricula and this is surely reflected in the grave shortage of primary care physicians in our society. In consequence fragments of primary health care are delivered by a wide and uncoordinated group including general practitioners, most pediatricians, some internists and other medical specialists, osteopaths, pharmacists, public health nurses, chiropractors, and lay healers.

Most primary care is still delivered in physicians' private offices. Of 567 million patient visits for primary care estimated for 1969 in the United States, the percentage distribution was as follows (Parker, 1973):

Private practitioners	77.9
Outpatient Departments	10.7
Emergency Rooms	7.1
Prepaid Group Practices	3.7
Neighborhood Health Centers	0.4
Free Clinics	0.2
	100.0

It should be noted that the first three institutions are well established and that the last three have each represented recent efforts to respond to society's needs—either to control costs, elevate the quality of care, make it more comprehensive, or reduce the barriers to utilization.

During the past decade, two movements in medical schools have sprung up independently to respond to the neglected needs for primary care in our society—family practice and community medicine. Although there is a high degree of overlap in their goals, they have so far tended to treat each other warily. In any discussion of the organization and management of an ideal primary health care system, the history and needs of each movement must be considered.

The family practice movement has tended to be a movement from outside pushing into the medical school and teaching hospital. The initiators have been practicing family physicians, nonmedical educators like John Millis, and legislators. Important goals have included acceptance of the family physician as a peer of other specialists and his access to the hospital for roles often automatically denied to him in the past, regardless of his capabilities. For residency training, most model family practice units have been based in the outpatient clinic of a hospital. The tertiary care nature of many university hospitals and the hostility of some faculty members in departments of medicine and pediatrics have often made it necessary to base the family practice training program in a community hospital. As long as the formula "academic equals tertiary care" persists, however, it continues to retard the acceptance of family medicine as a university discipline.

A different flavor has surrounded the growth of departments of community medicine. Leaders of this movement have tended to move from disciplines in preventive medicine and the established clinical departments out into the community. Their activities have been closely related to the civil rights movement, urban and rural underserved communities, and the Office of Economic Opportunity, and their institutional bases have included Neighborhood Health Centers, free clinics, and the like. They have tended to reject hospitals as a central focus for health care and to emphasize a more egalitarian role of other health care personnel vis-à-vis physicians. Other characterizations have included studies of the effect of environment (pollution, housing, nutrition) on health, the sponsorship of new health careers such as family health workers, the reduction of barriers to access, and finally the active acceptance of a consumer voice in health care.

Both of these movements are now encountering a new set of organizational and economic forces under the label of Health Maintenance Organization (HMO). The fee-for-service system, under which clinical practice has traditionally flourished, has come under increasing attack as the Federal Government (which now already pays for more than 25 percent of all personal health care) realizes that it contains no incentive for cost containment. In turn, as Federal bloc grants for Neighborhood Health Centers begin to shrink and free clinics feel the need to become more stable and consistent, the evolution of these centers into health maintenance organizations is becoming a necessary process for survival.

Thus, familiarity with the health maintenance organization movement becomes essential for the educator in family medicine and community medicine. The HMO movement under the traditional label of prepaid group practice has developed as an urban middle-class phenomenon closely related to large industries and trade unions. The pioneering physicians of Kaiser-Permanente and the Group Health Cooperative of Puget Sound received virtually no help or attention from medical educators and were often bitterly opposed by family practitioners through the medium of organized medicine. Primary medical care in HMO's, at least on the West Coast until recently, has been rendered chiefly by internists and pediatricians. Stress has been placed on making available a specified set of services to respond to episodes of illness. Continuity between an individual physician and a patient has not been highly valued and the care has not been organized in a family-centered framework. Just as the HMO has been little involved in the family medicine movement, it has also not been closely identified with academic community medicine. The subscribers to an HMO have been typically recruited through the company in which the breadwinner works and not through the community in which the family lives. Thus, the subscribers to the plan are scattered throughout a metropolitan area and represent a minority of families up and down their block. The Kaiser Health Plan considers that its market is close to saturation if 20 percent of families in a community are subscribers. Thus, attention to the physical and social environment of families has not been high in the priority of HMO goals.

It is perhaps useful to recapitulate my analysis at this point. Three groups in the past ten to twenty years have attempted to respond to society's needs for primary health care. The Family Practice movement has focused on the recruitment, formation and status of the family physician. Its target has been the care of persons in a family context. It has not given a great deal of attention to health care economics or to barriers to access. The Community Medicine movement has been characterized by the development of neighborhood institutions caring for people in a community context with an emphasis on the health care team, consumer involvement, and the integration of clinical medicine and public health. The HMO movement has stressed comprehensive organization of care, efficient planning, quality of individual services and financial self-sufficiency. It has not been notable for a family or community focus.

FUTURE ORGANIZATION OF PRIMARY CARE

From the foregoing considerations it now becomes possible to conceptualize the organization of primary care in the United States over the next twenty-five years. Rather than distinguishing between requirements and desiderata, I will list the elements of a model system for which local compromises will inevitably be made.

1. Primary care is organized as a nonprofit corporation, not merely a doctor's office or professional corporation. It cannot meet its goals as a proprietary branch of an investor-owned scheme. It

cannot reach fulfillment as a satellite function of a hospital.

2. It is physically located in the community it serves. Only thus can it share all the ecologic forces to which its constituency is subject and in which it must develop its priority of goals. For convenience I shall refer to the primary care organization as a community health center.

3. It serves a minimum of 3,000 and a maximum of 50,000 people. The smaller figure represents a marginal level that can barely achieve certain crucial economies of scale; it is most applicable to a rural area. The larger number is the limit beyond which bureaucracy and depersonalization begin to grow rapidly. Larger populations are better served by multiple dispersed health centers remaining close to their communities.

4. There are clear-cut efficient and effective patterns for inpatient care and specialty consultation. The relationship between the health center and the hospital is a complex one beyond the scope of this discussion. The health center must be able to control the costs and services of the hospital so that the patient will not be subjected to excessive or inappropriate procedures. On the other hand, concern with cost containment must not interfere with a high quality of care to be rendered.

5. The care in the center is rendered by family health care teams. Such teams have so far been irregularly successful. The more traditional model has been the physician as a purveyor of services surrounded by helpers under his direction. As health manpower organization becomes more sophisticated I believe the physician will become the senior member of the team and will relate to other members such as middle level medical workers (nurse practitioner and physician associate) and family health workers. Where appropriate, the team renders its care in a family-centered way so that advice and therapeutic programs recommended by team members will not be contradictory or conflicting for members of a family. Development of therapy should take into account the strengths and weaknesses of a family structure. However, this dimension must be delicately balanced with the right of an individual to privacy and confidentiality. Team members can share information and plan joint therapy only to the extent that their patients individually desire it.

6. The care is community-centered. This means that attention is paid to those who are not in the health care system to verify if they have health care needs or desires not currently met. Of course the right of these people to be left alone is essential. Community centeredness also means programs in health education, coordination with other institutions such as schools, churches, service clubs, and organizations of employers and employees.

7. The consumers have an organized and effective input into the programs and policies of the center. This important topic is the subject of another Fogarty Center monograph (Smith, 1976).

8. There is a comprehensive and stable system for financing which enhances productivity of the staff and cost containment of the program compatible with a high quality of care.

The administration of a primary health care center is a task as new as the centers themselves. So far, there has been little development of the curricula needed to educate primary health care administrators. For the purposes of this discussion, I am assuming a community health center governed by a board of consumers. In the smaller center, serving a population of 3,000–6,000 people and having two to four physicians on its staff, the administration is adequately served by an M.D. clinical director and a business manager. In a center at the large end of the scale, serving 30,000 people, a full-time senior administrator, presiding together with a clinical director over a more elaborate administrative structure, is needed. Qualifications of a physician or other professional for such roles would depend more on personality, commitment and managerial experience than on clinical training. At this point, few medical schools or programs in health and hospital administration are producing personnel with appropriate primary care orientation.

Regardless of professional background, the administrator of the primary care center must have the following attributes:

1. A knowledge of the culture of the community served. This includes fluency in the predominant or important secondary language of the community. It is clearly advantageous to reside in the community.

2. A grasp of community dynamics and experience with a consumer board. This includes an ability to help the board grow in knowledge and skill, to present issues to the board or to explain clearly why he does not.

3. A freedom to circulate (Mondragon, 1974). The administrator must never be so overwhelmed that he is pinned to his office all day. A close famil-

iarity first with all the functions of the health center, and second with the community is essential to spot changes, identify problems, and develop friendly links with staff and patient.

4. Insight and sympathy for staff undergoing role strain. Most professionals have not yet been properly educated for the roles they assume in a community health center. Problems of status, "turf" and economic reward often become acute unless identified and resolved early.

5. A knowledge of labor relations. Contemporary organizations tend to define and organize power explicitly. Health center administrators should be more prepared than hospital administrators have been for the advent of trade unionism.

6. Familiarity with data processing techniques. The large amounts of data needed to provide information on the operation and effectiveness of the community health center are essential.

7. Ability to develop objectives and evaluate progress in meeting these objectives. This is a complex management process which must involve the entire staff and representative consumers in the development of a plan submitted for approval by the governing board. It has become increasingly important to make the objectives of a health center explicit and realistic. It can become so all-consuming a process however, that it can interfere with seeing sick people. Once a plan is developed, evaluation of its implementation is critical if it is to be more than rhetoric. Inexpensive and efficacious methods for this evaluation are yet to be developed.

8. Leadership in the organization of an effective patient advocate system. The American Hospital Association (1973) has recently proposed a model "Patients Bill of Rights." While this was an important advance it is only an empty public relations gesture unless steps are taken by the administrator to insure that patients understand their rights and can have recourse to a procedure for assuring these rights.

CONCLUSION

In summary, the primary health center is seen as the keystone to the entire health care system. It must be responsive to the community, to the family, and to the person. To accomplish these goals, new roles and new ways of doing familiar tasks must be developed. The critical figure in this new institution will be the administrator—a person of many parts. He or she must maintain a delicate balance between, on the one hand, the human needs and the emotional climate of the health center for staff and patients alike, and on the other hand, the technical requirements for high quality services at the lowest cost. In fine, the primary care administrator becomes the linchpin of the new system.

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INVITED DISCUSSION

William Kissick

Summary Review

Primary Health Care is defined as "an organized delivery system that accepts responsibility to care for all residents of a defined community who wish to use its services." The physician is but one of a host of health professionals who share this responsibility. Primary care is but recently a focus of medical education. When one recognizes that primary care is delivered by private practitioners (78 percent), OPD's (Outpatient departments) and ER's (Emergency rooms) (18 percent), and Health Maintenance Organizations (HMO's) and Neighborhood Health Centers (4 percent), it is hardly surprising that the family practice (primary care) movement is not a creature of the medical schools and teaching hospitals.

The responses of academic medicine have been three-fold:

1. Family Practice—a passive acceptance of an outside initiative.
2. Community Medicine—a synthesis of preventive medicine and clinical medicine, in search of the community.
3. Health Maintenance Organization (HMO)—a delivery and financing system that appeals to Family Medicine and Community Medicine for different but compatible reasons. A tentative concept at best, Kaiser notwithstanding.

If these are indeed the current themes, what of the future?

The author conceptualizes a 25-year forecast—

1. Corporate primary care,
2. Focused on and based in the community,
3. Populations of 3,000 to 50,000,
4. Effective patterns of inpatient and specialty care,
5. Health care teams,
6. Community center care,
7. Consumer policy input,
8. Comprehensive and stable financing.

Obviously, the planning and capacity of it all becomes critical.

The issue of management rises to the fore. Administrators of the future require—

1. Knowledge of the community and its culture,
2. Appreciation of a community board,
3. Freedom to circulate,
4. Sensitivity to staff under stress,
5. Knowledge of labor relations,
6. Appreciation of data processing,
7. Facility in formulation of objectives and evaluation,
8. Knowledge of quality of care,
9. Appreciation of patient advocacy.

With this portfolio, who would doubt that the administrator of the future is the "linchpin" of the new primary care system.

Comment

Although broad in scope, Dr. Gibson's analysis of this most critical area is superficial. For this we must thank him. To have provided both breadth and depth would have required a tone which we could not have skimmed let alone assimilated.

I agree with most of the presentation—as far as it goes. This well may be far enough, given the very limited state of the art that surrounds our common endeavors—be we in Preventive Medicine, Primary Care, Community Medicine, or Family Medicine.

A few comments, if you will, by way of emphasis, as much as criticism.

(1) The data presented on 567 million patient visits for primary care in 1969 bear reflection. While 4 of 5 patients consulted private physicians, only 18 percent visited OPD's or ER's and less than 1 in 20 utilized Neighborhood Health Centers or HMO's. How could we investigate, educate and reform the present in terms of opportunities for change, while writing the scenarios of the 1990's? A numerical assessment is but a beginning. What, if anything, does an OPD or ER really have in common with the primary care conceptualized by Dr. Gibson?

(2) Family Practice needs a definition beyond "that which a family physician does." Likewise, the concept of primary care cannot long survive as the output of two or more health professionals gathered

together in the best interests of a patient, preferably called a consumer or client. Admittedly, we have time, for we have yet to challenge seriously someone else's turf. But breathing room is not eternity. Gertrude Stein notwithstanding, a family physician, is not a general practitioner, is not a primary care physician.

(3) Count's concluding description of the primary care system's administration of the future triggered recall of a pet theory. The changes within the organization and delivery of health services are going to be shaped more by the societal focuses outside medicine *per se* than by the developments and innovations within biomedical science and academic medicine. The Flexner Report was a cultural phenomenon; admittedly with the help of organized medicine, but a societal achievement nonetheless. The actual reform began in 1848 with the founding of the AMA and was concluded by NIH *circa* 1950's. When one recognizes that the Flexner Report was covered on the front page of the *New York Times,* societal readiness is obvious. The lesson for us is that if we look about, we may find more allies in other social systems than we will among our colleagues in academic medicine. If you suspect, as I do, that he who pays the piper, calls the tune, we might give equal time to Aetna, Connecticut General, Metropolitan, and Blue Cross as well as ATPM, AAMC, APHA, and AMA. We in health are in a political process, i.e., of, by and for the PEOPLE.

(4) Finally, a plug for Community Medicine. I prefer the definition penned by William H. Stewart, M.D., (1963) who will probably be remembered as the last established Surgeon General of the United States:

> *the specialized knowledge and skills required in our emerging system of medical services, a system which is neither 'state medicine,' nor 'socialized medicine,' nor 'private medicine,' but a combined public and private effort for comprehensive health care in every American community. (Stewart, 1963)*

For me, Community Medicine can be perceived functionally, as an effort to merge medical practice with public health (use preventive medicine if you will), followed by a synthesis of this whole with the social, behavioral, and systems sciences. This is what we are attempting at the University of Pennsylvania. We are making more progress with the merger (with public health) than with the synthesis. A collaboration between the Department of Community Medicine and the Leonard Davis Institute of Health Economics of the Wharton School has resulted in a Graduate Program in Health Care Administration, an interdisciplinary Research and Development Unit, and an Advanced Management Program. An undergraduate major in Health Systems is in the planning phase.

The Clinical Scholars Program commenced July 1974, and will focus on providing systems sciences skills to physicians who hopefully may become the Community Medicine specialists of the future. If Count's primary care administrators become the linchpins of the new system, these men and women will hopefully become the strategists and architects. It could be quite a combination.

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DISCUSSION

BUYSE: Let us now discuss the future role that primary practitioners and teachers can play in bringing about change. Primary care people can be a very powerful lobby because of their unique position in the community—the esteem, the prestige they are almost automatically awarded.

FARLEY: The medical education system plays a fantastically important role in determining the medical care system. Much of the present inadequacy and inappropriateness of our medical care system might have been avoided had medical education concerned itself in the past with primary care issues.

In a sense, that is why I left a primary care practice. After seven years of trying to find somebody who wanted to join an exciting practice in a nice area and really develop something, I realized the medical education system said, "No, that's nonsense, be a cardiologist, be a psychiatrist, be anything but what you're doing, because that absolutely can't be good medicine." Traditionally, we have been training doctors in sophisticated hospitals hoping that both the community's and the doctors' needs can be forced to meet. What we should be saying is, "Train doctors who can meet the needs of the community—which includes specialists and subspecialists—but in rational proportions and at a logical level of care rather than dominating care."

Despite successes with our family medicine residency program and in spite of this workshop, I get extremely pessimistic about the ability of the medical education system to change. It is a monolithic organization committed to massive departments that have minimal visions of what society needs. For that matter, primary care could be as myopic as the rest if, for instance, it were to insist upon the solo general practitioner as the exclusive primary care model.

KISSICK: We have one possible exception to this pessimistic outlook. I have a question for Dick Baker, provoked by my constantly looking in two directions, trying to find historical precedence, while trying to figure out the future. The University of Washington may have reshaped that monolithic structure. The secret of the Flexner report was the existence of Johns Hopkins. Flexner, after criticizing everything, stated what should be done, and said one group was doing it the right way. The University of Washington's strength in family medicine is incredible. It is a young school, it is an exciting school, and its biomedical research faculty can stack up against any medical school in the country. Is anybody writing up the story, the case history of what it is? How it is happening? We really learn from such a prototype.

BAKER: They are writing bits and pieces about it, the initial go with the track system, which is the cornerstone. The school decided to have a track system with family physicians as one of the two clinical tracks. The director implemented these decisions, and the school has been built in that kind of atmosphere.

STOKES: To affect social changes two things are necessary, and the Flexner report gives an example. First, you need a working model, and secondly, you need a salesman. Ralph Nader is an example of both. He gets hold of good mousetraps, and then he sells them. Now, you know, the University of Washington isn't going to have an impact on American academia unless it is sold. Just the fact that it is there is not enough.

WALKER: The issue is: How do we bring about change? The mammoth amount of brain power available in academia and in medical schools is something to be tapped. And yet, it is pointed out that by their nature most medical schools are poorly suited to serve as change agents—the deans have relatively little power, the departments wherein the power rests see their turf threatened by each new idea.

The effect that a regional health authority such as that proposed in the Rogers-Roy-Hastings bill might have in changing the direction of medical education should be considered. Presumably this would derive from a mix of consumer and provider input in deciding the needs of a particular area.

GIBSON: Several brief responses to these comments and questions. Firstly, I fully agree with Dr. Kissick's earlier point, that the pressures for change in the medical curriculum are going to come from outside the medical profession and its institutions. The family practice movement is here because of

Congress and State legislatures, no thanks really to the AMA or the AAMC.

Secondly, regionalization, where the medical school will play a key part in a larger system, emphasizing the importance of producing physicians to meet the region's needs. While not explicitly stated in the regional health authority bills currently being considered in Congress, it is nonetheless implicit in these bills.

Finally, while there is currently much emphasis on consumer inputs to health planning, the potential primary physician's role in the current and future cadre of change agents is an important one. This physician role will, however, be different from the traditional one. Hopefully, consumers will not automatically accept physicians' judgments simply because they are grateful for the physicians' presence in the community.

SMITH: I commend Drs. Gibson and Kissick on their analysis of management and organization and the changing role of the private and public sector in our health care systems—it looks very colorful. The problem with this whole concept is in seeing where the minority, or where specifically the black indigent patient, fits into all of those changes. For instance, I can see some real problems with the HMO model. In fact, it has been said time and time again that HMO is not designed to support indigent patients. Only a middle class type clientele can understand the model, can afford its services, and can participate in consumer boards, etc., if it is to work at all. No system, the HMO or any others discussed here, has taken into account that in dealing with the indigent minority, usually black population in this country, you are dealing with some real social evils that do not exist in middle America.

First, you don't have the consumer sophistication that is assumed when you speak of a patient bill of rights and of regional planning or community health center advisory boards. You have a few radical attempts such as the Saluda group and the Black Panther group out in California, none of which ever really got a foothold on any type of system for delivering health care.

Secondly, there are the discriminatory practices in providing medical services which are so familiar in our society, particularly the cities. I illustrate this by way of anecdote. I moonlight at D.C. General Hospital as medical officer in charge during the midnight to 8:00 a.m. shift. Invariably, I receive calls from other hospitals, usually university teaching hospitals, to transfer acutely ill patients to the public hospital. My questions are, "Why can't you treat the patient there? Why run the risk of the patient dying in the ambulance coming to D.C. General?" The response is usually, "Well, the patient doesn't have any insurance," or "We just don't have any facilities to take care of patients like this." Two recent cases—a woman with an incomplete abortion and hematocrit, 19 years old, another suffering from acute appendicitis with unstable vital signs—are a good illustration of what I mentioned previously.

Finally, I would mention the lack of physicians willing to practice within indigent communities, both rural and urban. The popular notion of filling such gaps with physician assistants is naive. In areas where medical problems tend to be most severe, it is hardly appropriate to look to paramedical personnel to provide solutions. Again, the physician assistant concept is one more suited to supplement the health maintenance type medical service needs of middle class communities.

In summary, these and other problems afflict the black community. We have to go back to the drawing boards and do more research on how to solve some of these problems. They are not the same problems of middle America. If anything, they are more akin to health care problems of the indigent populations of developing countries.

GIBSON: Dr. Smith has raised some very crucial issues.

The general reorganization of our society and liberation of the black community is critical and how this is going to be done is another long matter which obviously we cannot begin to touch at this time. But the whole economic basis and self-determination of the black community is what will ultimately be the crucial determinant, and not just a temporary solution. Until this happens, there are some things that can and are being done to alleviate some of the particular problems of minorities in dealing with the medical care system.

Most important, each community can develop the sophistication to effectively participate in planning for its medical services. There are many shrewd black consumers now as a result of some of the OEO neighborhood center days. There are some very smart people now around Mound Bayou, Mississippi. For example, the Farmers' Coop has learned a lot about bureaucracy, as has Charles Evers, in Fayette, Mississippi. We will find that an increasing number of black politicians and their staffs—the

Black Caucus in Congress, for instance—have now acquired the power to begin developing some of these things.

Further, a true national health insurance program should provide equivalent ability among all parts of our society to purchase medical care. This is crucial and it should do away with many of the inequities, such as the one cited by Dr. Smith, which result from our present system of financing medical care.

SCUTCHFIELD: It takes money to change a system resulting from such inequities. Dr. Gibson's comment about a national health insurance which would enable people to buy decent health care is probably the only way it could be done. The same is true of bringing about change in the medical education system. Money will always talk. It will be the only thing that talks. When there are funds available for family medicine in the HEW budget, as proposed in the various health manpower bills in Congress, then these departments will move.

KISSICK: The issue is change, and the question is leverage—where is it, what is it? My answer is economics.

Our percentage of Gross National Product expended for health is now 7.7 percent. It is $94 billion (FY 1974), and projections for 1980 are in excess of $200 billion. This would be approximately 9.8 percent of the Gross National Product—one out of every $10 worth of goods and services produced! This is the upper limit; we cannot cross it. Not because of anything going on in the health industry, but because the other sectors of society cannot tolerate it. The portions needed for housing, food, clothing, education, transportation, etc., add up to more than 90 percent. The needs of society exceed GNP. A study done a few years ago pointed out that by 1980—according to current trends—we would need 25 percent in excess of GNP to meet our societal needs. Obviously, we are going to meet some; some we are not. Here we get into political decisionmaking, dealing with what Saward calls a "closed budget."

In the midst of this we are going to find an increasing presence of the corporate model. An HMO could be one corporate model; Harvard has one. There is a proposal by Leonard Cronkite for a decentralized franchised family physician with support services in terms of information systems, billing, ancillary health manpower, etc. There are situations when a doctor needs one and a half nurses. You can't hire that way, but if hiring on a corporate basis, you can hire 300 nurses and spread them across 350 situations. The corporate model approach is economically viable and it will be used in the health area.

Consumers will play an important role in Congress decisions of legislation in the health area. The Rogers-Roy-Hastings national health planning bill proposes to create a council of health advisors out of the Council of Economic Advisors in the White House to determine priorities, allocation of resources, and other such matters. Priorities would be determined by a look at the whole problem, and regionalization would create health service areas, which would be viable and valid in time, but the way it is presently structured, it would not work. The decisionmaking powers would be potentially so great and the pooling of funds so threatening to many people in the health sector. The bill states that if in a specified period of time the geographic areas are not designated locally, the secretary shall designate them. It seems that the bill's main purpose will be a provocation of consideration, a debate in dialogue.

SMITH: I have a question for Dr. Gibson. When California implemented a program to control the cost of MediCal, is it true that the cost for the State did not change significantly because the money went into such areas as administration, third party contracts, etc.?

GIBSON: When the MediCal reform was passed, 40 additional clerks were hired to administer it. It put a lid on the dollars going into the physicians' pockets and spent them elsewhere, with no real savings.

SMITH: Wouldn't this be true with national approach, alluded to by Dr. Kissick? Are we really going to stop the escalation of the cost of the product by changing it into the corporate stream?

KISSICK: A corporation does not necessarily have to be national; it can be local or regional. The United States will not approximate the British National Health Services. It is one large V.A. Stop and think about it. It is not consistent with our ideology and the way we do things; it wouldn't work if we tried. Our approach will be different. By corporate I mean that there are other aspects to the delivery of medical care than those deemed important by members of the medical profession, who do many thing inefficiently and ineffectively, often at exorbi-

tant cost. Corporations take time and energy to ferret out these things. The physician will not be subjugated by this. He can have an even greater effectiveness and professional satisfaction. This should apply equally to the teachers, practitioners, and managers of the medical care of the future.

SUPPLEMENTS

As an outgrowth of informal discussions among symposium participants, certain important points of view, which were not amply covered in the original deliberations, were identified and subsequently short papers on two of these issues were written and submitted to the editor. They are included as supplements to the symposium.

The first paper, by Drs. Payton and Smith, both family practice residents at the University of Rochester, provides a systematic and reasoned analysis of those aspects of preventive and community medicine which they deem of particular importance to their primary care practice. They offer suggestions for integrating such teaching into the primary care training setting.

The second supplement, by Dr. Falk, focuses upon some special problems of women and members of minority groups in entering the mainstream of the medical educational establishment in this country. Attention is drawn to the experiences of Meharry Medical School in developing community medicine and primary care teaching resources. The paper includes a brief social history of some roles and concerns of public health: women, black, brown, and native American health workers in our society. It presents these questions as social policy issues, and therefore requiring legislative and administrative attention.

PREVENTIVE/COMMUNITY MEDICINE ROLES IN PRIMARY CARE EDUCATION—THE FAMILY PRACTICE RESIDENT'S PERSPECTIVE

C. Payton and S. Smith

BACKGROUND

The results of two decades of Federal subsidies in medical education are well known. This country has experienced improvements in subspecialty care previously unmatched. In the early 1960's students for the first time either felt the lack of opportunity, or ventured the impudence to point out how isolated they were from basic societal needs in health. Because the movement initially dealt with social responsibility in areas such as equal voting rights (the freedom rides of 1963), the movement became known as community health. Though Richard Weinerman, George Silver, and others had written about socioeconomic concerns in health, it wasn't until the sixties that health professionals generally accepted the causal relationship between national politics and individual health and welfare. The major stimulus did not come from our intellectuals in the education establishment; it did not come from practicing health professionals; it came from students! Since the mid-sixties, over five thousand health science students have participated in projects sponsored by SHO (The Student Health Organization), SAMA (The Student American Medical Association), and numerous local collections of aggressive, innovative students.

Some of the lessons learned by these students are important in understanding the present thrust toward primary care and why the disciplines of preventive and community health are integrally related to primary care.

First, the trend toward subspecialization took care-givers further and further away from their constituents. This was true at the interpersonal and geographic levels. The more acculturated physicians became during their nine or more years of higher education, the more impossible it became for them to feel the experiences of their patients and neighbors. Maybe it would be better to call this "deculturation" from society's point of view. The need for facilities and technology also took practitioners to major population centers, making care unavailable to vast segments of our population.

Second, students witnessed the abrogation of medicine's responsibility to family and community. It gradually became more difficult for families to find a single locus of care for all of their members. Though rarely trained for the task, the vanishing general practitioner, because of his relationship with most members of any family, was able to recognize and respond to the problems that cause individual illnesses among relatives and within the community. Because this physician in many cases served in various civic activities, he was able to either stimulate the development of public health services or initiate and coordinate the provision of these services to his patients. The authors would prefer to avoid the word "patient" because it is illness-oriented and carries the connotation of dependency. Since it is generally accepted, we will continue to use it, however, with the understanding that it describes the relationship between health professionals and all of those clients or nonclients for whom they feel a stewardship responsibility as aptly defined by John Millis (1966).

Third, it became quite obvious that the explosion of health knowledge made it henceforth impossible for comprehensive care to be delivered by a single practitioner. The consequence of this has been the reorganization of manpower into teams of personnel dependent on sophisticated measurement tools for determining health needs of individuals and of population groups. They have demanded the use of constantly improving methods for patient information storage and retrieval.

Lastly, this generation inherited the legacy of ever-increasing costs for the multitude of services now available and an appropriate public concern for the quality of care that is given. Because of these pressures today's physicians must be more aware of new organizational concepts which will promote greater efficiency. Through such innovations as POMR (Problem Oriented Medical Records), students can engage in personal and peer review.

CHARACTERISTICS OF PRIMARY CARE

A discussion of the kind of preventive health programs fundamental to primary care training should be preceded by an analysis of primary care needs and practices. The parameters we will use are not new, but their restatement is essential.

Quality of care is an overriding concern which recipients can assess for appropriateness and acceptability, and which practitioners can assess for scientific competence. From the consumer's standpoint, the application of limited health resources must respond to priority needs. A means for establishing priority must be available to those planning health services within a community.

Comprehensive care is an issue within the primary care level as well as between primary, secondary, tertiary levels of care. Practitioners need a broader view of health than the classical "medical model" which typically relies on an organic failure to justify therapeutic intervention. There are two concepts that need modification. First, that causal factors must be organic. More attention should be given to environmental factors, such as industrial hazards which predispose to physical injury and illness, and to socioeconomic conditions, which influence emotional well-being. Secondly, that practitioner involvement need only be directed at negative deviations from normal health indicators. Antismoking and pollution campaigns are examples of our limited efforts to actually elevate our normal health standards.

Continuity of care is a concept often attached to the intensity and longevity of patient-provider relationship. Indeed, for some populations, an ongoing relationship with a limited number of providers is an element of acceptable care. Intuitively, it also seems reasonable that this is a more rewarding experience for many practitioners. These are subjective considerations which must not be disregarded, but more critical to the theme of this paper is the more objective correlation between continuity and quality care. In this area, continuity can be established between a health system and the individual client or community. To accomplish this, the memory function must become more mechanical. The medical record is the heart of the health system's operations. Records must be complete, easily interpreted, and readily available to all the providers within the system.

CURRICULAR OUTLINE

Below is an outline of the nonclinical elements the authors feel should be part of primary care training. Postgraduate experiences are not required. In fact, many could and should be part of the medical, nursing, and other undergraduate's primary care oriented education.

Problem Identification

—Work with consumer boards
—Survey and sampling techniques
—Use of medical records to indicate existing major problems

Preventive Care Design

—Assist in creating health maintenance program
1. Cost effectiveness
2. Patient monitoring system
3. Internal research protocol

Quality Care

—Peer review mechanisms
—Record system for ease of assessment (software)
—Use of flow charts

Continuity and Comprehensiveness

—System-patient interfaces (where, when)
—Medical records to aid each practitioner
—Style of team practice

Community Elements

—Environmental health
—Industrial health
—School health
—Public health education
—Social services

Organizational

—Regionalization
—Financing mechanisms

INSTRUCTIONAL METHODOLOGY

Problem identification is a fundamental skill that all health workers develop to a greater or lesser degree. For most, it is limited to clinical disease orientation. The teaching model in primary care should give a more catholic view, stimulating practitioners to probe for environmental and social causes of disease and determinants of care within this community.

The introductory statistics courses in medical school usually lack relevance for students, and prac-

tical tools are usually forgotten by the time one approaches active practice. Working with consumer boards not only provides input on problem priorities but represents a significant first step at health education. Both these areas are potential for direct involvement of preventive medicine faculties. Primary care trainees would learn by participation and direct observation. In this and other contexts, trainees would work under the direction of preventive medicine, constructing and carrying out survey and sampling procedures that have direct pertinence to the service institution in which they work. Preventive medicine can also work with trainees in the design of record systems that, not only aid in the clinical practice, but are useful for identifying problems of populations. Our bias is that Problem Oriented Medical Record (POMR) is the heart of the system. Methods must be developed for abstracting and storing this data for the individual persons and practices. Faculties must be familiar with various approaches, such as "E" books (Eimerl, 1969) for coding diagnoses. This will enable them to give primary care providers an understanding of their usefulness.

Preventive medicine should also have a critical role in the move toward an effective health maintenance program. Epidemiologists and statisticians should collaborate in providing us with the morbidity information about various modes of intervention. For key illnesses we must know whether to rely on risk factor information to provide pre-illness services, make intense efforts at early acute diagnosis and treatment, or postdisease rehabilitation. Instructors of primary care trainees can help interpret the available literature on morbidity and mortality, cost effectiveness, and systems design for patient monitoring. These tasks can be accomplished by assisting in the design of such activities for the model practice units in which trainees work, providing syllabuses with appropriate literature, and conducting seminars for trainees.

Quality review may not be a subject to which preventive medicine addresses itself directly. Its contribution to better record systems and monitoring programs can significantly improve the effectiveness, however, with which PSRO's and other such agencies can operate.

The authors see comprehensive care as an issue mainly of the organization of services. Since medicine has passed the landmark when it can meet the full breadth of health needs as a cottage industry, careful studies on the variety of organizational systems now in experimental phase should be made. Preventive medicine faculty, besides designing and conducting these studies, should give new practitioners information that will help them change to the style of practice that best allows them to meet a combination of professional and public needs.

Surprisingly, community health at the undergraduate level is often taught by departments other than Preventive Medicine. Students are introduced to various health care settings without knowing how to interpret their observations and how to assimilate the experience in a meaningful way. The issues that need to be raised with students include superficial descriptions and evaluations of the population receiving care, resources available, either publicly or privately, and the organization of resources as it influences the pattern of care. Because community health implies concern for problems of population rather than individuals, the bulk of services in this area have been generated by preventive medicine and public health types. The specific services that will continue to fall in their purview include environmental and industrial health. Primary care provides an excellent opportunity for practitioners to work as team members with public health and social service officials. By learning to communicate at this level, it is possible to most effectively approach those health needs of individuals which require intervention in socioeconomic systems/institutions. Though primary practitioners will probably not intervene in environmental and industrial health, they will share the responsibility for identifying and reporting health problems in these areas. Meeting the need for public awareness and competence in self-care and early disease detection will require combined efforts by primary practitioners and their community health colleagues. Some of the content and methods of delivery could reasonably be taught by public health educators.

Another area in which the measurement and design tools used in preventive and community health are of value is in developing continuity at the patient-provider interface.

The evolution of practice over the last decade has diminished the continuity that is available through personal interaction between the patient and an individual practitioner. As physician partnerships increase, the role of the medical record and team communications becomes more crucial. These are purported to allow continuity to exist between

a patient and an institution. However, little information exists about the adequacy of these substitutes and how their value is optimized for the institutions that choose to go this route. Such evaluations should be an ongoing activity of model practice units in which primary practitioners train. Once again, the role of preventive and community health is working side by side with trainees in accomplishing this goal.

The remaining curricular goals deal with macrosystems and the determinants that will shape the overall structure of health care in the future. The major emphasis of recent legislation has dealt with the regional organization of services and the restructuring of health financing. Community health faculties are usually the most informed members of the academic community. They can serve as the nucleus for periodic seminars that give trainees an overview of such issues as comprehensive health planning, regional medical programs, National Health insurance, and prepayment systems.

In summary, the authors' expectations of teachers of preventive and community health are extensive. They are no more unreasonable, however, than the demands made of other disciplines to move from the "pure" to "applied" sciences in providing primary care. We invite them to join the coming revolution in medicine.

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MEDICAL EDUCATION FROM THE PERSPECTIVE OF MINORITY GROUPS— A SOCIAL POLICY ISSUE

Leslie Falk

BACKGROUND

Dr. Robert Berg urged us in our discussion of social policy issues to bring up some "here and now" examples, as well as some long term ones. This discussion will include that effort.

We have established by now that primary care and community medicine are "in it together," even though they are separate disciplines. But what is the "it"? Do we define "it" the same way? The specific social meaning of things at the social policy level has to be described at this point by some examples. Both the family practice and the preventive medicine movements have had great difficulty identifying with black, brown and red people, women and poor white populations, at least from the viewpoints, beliefs and cultures of those "minorities." We need to understand this historically. We have to deal with the role of women as healers, and the nature of the healer in our minority cultures. What has it meant to get an education in a white, male-dominated medical school system in the United States? What were the problems of the two black segregated schools—Howard and Meharry? What about the small group of minority practitioners who did develop? Are there great resources of talent in the minorities which can be tapped much more than they have been in the past? If so, can they get past the defeating behavior of some medical school faculty members? In short, how can we of the white-dominant group "turn our hearing aids" on better to minorities and women, and listen to their vocabularies, their ways of thinking and acting?

Let me speak personally now for a while.

Meharry Medical College

I came to Meharry Medical College, a predominantly black school, seven years ago (1967) with a recent background focused on health administration, health care delivery, occupational medicine, health planning and the financing of health services. I got to these from antibiotics research and nutrition interests (which led me into the preventive medicine-public health world). I then added medical sociology and medical history as concentrations in the basic disciplines.

Meharry Medical School had a marginal image in October 1967. The big question was whether it should survive, or whether it should "go out of business." These years at Meharry have demonstrated to me the importance of the black-led institution. Meharry's keen ear for the community minority and poor population's needs, its efforts to work with the consumer, and above all its faith and demonstration that the black man or woman can become a good doctor, are precious attributes. Fortunately, it is beyond the bootstrap-raising level now and becoming a first-rate institution.

An Office of Equal Opportunity-financed Neighborhood Health Center, now called the Matthew Walker Health Center, was built in 1969, the first major construction at Meharry since 1931. This is an important fact for some of those who may have forgotten the key role which the "poverty program" played in that period. "Consumer participation," consumer involvement and identification, meant to it, and to other medical schools, a fresh breeze through sutffy corridors.

We set up four family health teams, with primary care as the center of the model. These teams serve an inner-city population of some 40,000 people, predominantly black, with some 12 percent low-income white, mostly very young and very old. The term, "family health team" meant, at first, a mix of physicians, nurses and health workers working in ten-room suites. Primary care physician meant either an internist or a pediatrician; family medicine physicians had not appeared on our scene. In other words, Meharry had not yet gone the route of identifying with the family practice education movement. The initial expectation that some older general practitioners might want to return did not occur. This seemed to be primarily an economic fact, i.e., the income which one accumulated was not competitive.

However, we promptly introduced the expanded nurse role. The public health nurse who had visited the ill in their homes, logically merged into the nurse

practitioner. In this primary care teaching role, the nurse practitioner does not practice independently unless the family health team is without a doctor. She is given more responsibility if there is no doctor, but she is still supervised on the premises.

In this setting, our clinical year medical students negotiated with the health center's Consumer Health Council to participate in the patient care activities. Students could not be introduced into the center immediately because the community did not trust them. Health center professionals and the faculty were smart enough not to push the issue. The students and the consumers themselves worked out a successful agreement, which has worked beautifully now for five years. Since 1969 the Department of Family and Community Health has had a core rotation of six weeks, with a controlled number of clinical year students. (We also have a good deal of earlier core time, 36 hours in the first year, and 72 hours in the second year. So we are in a fortunate access situation with all the medical students.) At first, eight students were assigned as clinical clerks to the Matthew Walker Health Center, combining in one six-week clinical rotation the two fields of community medicine and primary medical care, attempting their unification. The educational goals are: patient care competence; understanding the primary health team and primary care provision; basic preventive medicine-public health competence; community diagnosis and community "prescription" (health planning or social action).

We are working towards the "same-time-same place" kind of educational goal for the student health team. This is terribly difficult as anybody who has tried it knows. A wonderful opportunity developed from the beginning—a weekly family health team conference, including all the health workers of a family team and any students working in that team. At this conference someone gives an on-the-spot, real-life case, or a report on a patient-case or an epidemiological, health care organization, health and human values, or biomedical ethics case.

In 1972, an on-campus health care delivery model, the "314–E" Comprehensive Health Center, was developed. It serves a second defined population, and includes patients from the rest of the predominantly black neighborhoods of Nashville. A Children and Youth program and a Community Mental Health Center, which are part of the organized ambulatory team model are also on campus. All ambulatory services have been transferred to these new buildings and new models including a private practice group.

About half of the students now have their preceptor placement in off-campus arrangements. One is an epidemiological placement with the Tennessee State Health Department located in Nashville; another is tuberculosis control. Organized health care delivery systems are used in areas such as Jackson, Miss., Chattanooga, Chicago, New York City, and areas such as the Lee County Cooperative Clinic, Marianna, Arkansas, and the Mound Bayou, Mississippi Delta Health Center where we have attempted to build on what they and Tufts accomplished. Specifically, we are developing a broad educational program as part of an area health program centered at the community hospital.

Tuskegee is another example of Meharry area health education relationships. It has emerged from the days of segregated education when it was necessary that black residents go to places like Tuskegee. It left behind dozens of capable physicians who were willing to teach. The Tuskegee Area Health Education Center represents another easy planning entity in which to work.

The rural and the inner city shortages are a reality which we experience clearly. Some of our education involves the student and the resident in a listening-to-the-consumer session. A delegation is likely to come in saying "Can you find us a doctor?" How you work with this community, expressing what it thinks its needs are, is basic. We attempt to make a community diagnosis and prescription, to build more closely what's feasible, and give some professional interchange on what the model should be, rather than the fruitless "knocking ourselves out" task of trying to recruit a solo practice doctor for a rural community. The extent to which the academic unit of students, residents and faculty can set up models which will influence students is an important high priority effort in our educational program.

A western Tennessee project in Fayette and Haywood Counties, two of the poorest counties in the country, provides "Health Fairs" with multiphasic screening and followup of positive findings. We identified the health problems, health rights, and health services needs, and the result is a community center with one doctor, one nurse practitioner and health workers.

An example is necessary to indicate how we combine and identify health and health services needs. We discuss the difference in the inner city

between identifying pulmonary disease and its relationship to air pollution, to person self-pollution through the cigarette, and pollution relation to occupation. These are all different levels which we try to relate to primary care. For example, asbestos is practically ubiquitous around us all, both in environmental air and in occupations, like heating and ventilating. But is asbestosis, as a disease? It is a little more difficult to get people excited about smog control in the inner city, particularly in a black community where rats run across the street, and students easily say, "Man, you're trying to put us off with this kind of indirect political stuff. Where can we get on smog? You get to change the system. Let's clean up the rats; we hate them." So we say, fine, let's give attention to rat control. What does that mean in social policy. Ultimately, the "power structure" (slum-lord influence and political process) surface. In this instance, what is the consumer's role, including the citizens' health council, if any? After it is demonstrated a couple of times that a medical student delegation "didn't get anywhere," we settle down with the values and efforts by which they live their lives.

I hope I have given a bit of flavor to the attempts of family practice and community health, despite their differences, to feel comfortably at home together. It is easy to shove Preventive Medicine-Public Health Part II National Boards under the noses of clinical students, as a necessary learning objective to be able to practice. In family practice, patient care competencies and family knowledge and skills are the necessary objectives. We will gladly supply a detailed list of educational objectives to those interested.

We are biased toward the organized practice teaching model rather than toward the solo practitioner model. We have sought out the organized health team delivery system, and have a series of such arrangements—rural and urban. One is an all-white, four doctor (two males and two females) family practice group in a rural county seat an hour's drive south of Nashville, in Shelbyville, Tennessee. The county hospital is across the road. We have given this model a high priority. In this case, the current president of the Tennessee Academy of Family Practice is a member. The practitioners on this team are "eager-beaver teachers," and are rated highly among field faculty preceptors in effectiveness. We have a guide containing our educational objectives to help our field faculty in evaluating students.

Social History

In relating the historical development of community and primary medicine, I will expand a bit beyond this paper. Both fields have a historical advantage in that neither has developed from the "gentleman physician" (nonmanual labor type). In the 19th century the general practitioner came from the lower or middle class; perhaps he was an apothecary, certainly not a learned "gentleman." Public health, the precursor to community medicine, was part of the "reform movement." It was involved in problems of contaminated drinking water and other such hazards. Both community medicine and primary medicine had to face the pressing problems of daily life, with little time to keep up with new research, and thus did not always provide the best and latest services.

Women: Woman's role as midwife progressively began to lose its legitimacy, particularly in the United States. Medicine has been male-dominated in the United States historically and this should be understood, recognized and consciously corrected.

Black Doctors: The black doctor also has been discriminated against in the United States. By maintaining independence and loyalty to the black race, African culture was a threat and had to be destroyed. Slaves could not legally become doctors because it gave them the freedom which could be used against their masters, and also it was dangerous for a slave to move around. Tennessee is an example of that which occurred in all the slave-owning States. Laws were enacted forbidding slaves to become doctors. Life was vicarious and full of prejudice against blacks—free or slave. New York abolished slavery as late as 1835. The Civil War and Emancipation Proclamation came only 30 years later, both preceded and succeeded by segregation, discrimination, race riots, and exclusion of blacks from the best educational opportunities.

Brown Healers and Native Americans: Another example of discrimination exists toward the brown race—the Chicano—and the American Indian. The Chicano had the unavoidable migrant health problems, the language barrier, and their superstitious beliefs about illnesses. The American Indian also had his own beliefs about illness and well-being. The medicine man's role as healer is an aspect of the culture of the Indian that should have been understood in its context. It is clear, of course, that the relationship of poverty and dependency is crucial among these minorities.

Other Health Workers: In addition to the physician—in prevention or in primary care—there is the family health team. Almost automatically, in talking of the family health team, the primary health team, the preventive health team, one visualizes the nurse and other health workers. We must incorporate into our education actual health team models. Role relationships are crucial. We must give students opportunities to learn the right models, as well as the "wrong" model of the declining, isolated practitioner. If we present only one model we can slow the future in favor of the status quo.

Our research in health services can help clarify the effectiveness and improvement of these models for health service delivery. For example, can we confirm that the patient counseling and education role is more successfully done by nurses than by physicians? There are some leads in the health services research literature that this is a fact. For example, diabetics understood and remained on nurse-explained diets better than on M.D.-explained diets. Thus, we must evaluate both models and contents, considering patient satisfaction and health maintenance, as well as disease and treatment specifics.

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